How healthy are we?

September 2002

British Columbia's Report on Nationally Comparable Performance Indicators

BRITISH COLUMBIA
Ministry of Health Planning

LETTER FROM THE MINISTER

I am pleased to release this first British Columbia report on nationally comparable performance indicators for our public health care system. This report is part of a national initiative, begun by First Ministers in 2000, to report on how our public health care systems are performing and how healthy we are.

As British Columbians, we care deeply about our health and that of our loved ones, and we want to be sure that we have access to quality health services that will be sustainable now and in the future. This report is one way to measure our progress in achieving these important goals. By providing this information in an open and transparent way, we are ensuring that government and our health system can be held accountable for how precious health care resources are used.

This paper includes indicators of the overall health of British Columbians, as well as measures of health care outcomes and the results of prevention initiatives. In addition, this report speaks about access to services, and the quality of health services – such as waiting times, patient satisfaction, and hospital admissions for conditions that can often be appropriately treated in the community. Many of these indicators are being reported here for the first time.

This information is important, as our provincial government is making innovative changes to health care in B.C. to put patients first and build a more sustainable, effective public health care system. Reports like this show us the strengths and weaknesses of our health system, what is working well, and what needs improvement.

The results for British Columbia are mainly positive. We are generally healthy and our public health care system is doing a good job of meeting our needs. For example, British Columbians fare well in areas such as life expectancy, and B.C. babies are generally among the world's healthiest. Several areas of challenge are also noted in this report. These include increasing lung cancer among women, waiting lists that are too long, growing concern about diabetes in an aging population, and the relatively large number of British Columbians who are overweight or not physically active.

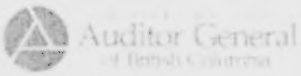
The release of this report is consistent with our government's New Era commitments to increased accountability and a stronger focus on health planning and health quality. Our emphasis on performance measurement and accountability is reflected in three-year ministry service plans, ministry annual reports, and performance agreements with health authorities.

British Columbia will report on nationally comparable performance indicators every two years. This will allow us to track our progress and will assist us in improving the health status of British Columbians.

Sindi Hawkins

Hon. Sindi Hawkins
Minister of Health Planning

AUDIT OPINION



Report of the Auditor General of British Columbia

BRITISH COLUMBIA'S REPORT ON NATIONALLY COMPARABLE PERFORMANCE INDICATORS SEPTEMBER 2002

To the Legislative Assembly of the Province of British Columbia

Purpose

I have audited the indicators presented in the Ministry of Health Services and Ministry of Health Planning (the Ministries) Report on Nationally Comparable Performance Indicators dated September 2002 based on the commitment made in the First Ministers' Meeting Communiqué on Health dated September 11th, 2000. The Conference of Deputy Ministers defined the specific indicators to be regularly reported to Canadians. The preparation of this indicators report is the responsibility of the Ministries. My responsibility is to express an opinion on the indicators based on my audit. However, my responsibility does not extend to assessing the performance achieved or the relevance of the indicators.

Scope

Except as explained in this audit report (see the "Exceptions" section below), I conducted my audit in accordance with standards for assurance engagements established by the Canadian Institute of Chartered Accountants. Those standards require that I plan and perform an audit to obtain reasonable assurance whether the indicators are free of significant misstatements and meet suitable criteria. To this end, I audited these indicators to determine whether they meet the criteria set out in the Annex to this report.

My audit included examining, on a test basis, evidence supporting the indicators and disclosures. As well, my audit was limited to information related to the most recent year in which each indicator was reported. My review of analysis provided by the Ministries in the report was limited to ensuring that the information was not inconsistent with the indicator results.

Conclusion

In my opinion, except for the 18 indicators on which I express no opinion, and subject to the limitations disclosed in this audit report, the indicators included in the Ministries' report are, in all significant respects, presented fairly in accordance with the criteria in the Annex attached to my report and the definitions approved by the Conference of Deputy Ministers.

Exceptions

There were 67 indicators defined by the Conference of Deputy Ministers. Sixty-two are fully reported on by the British Columbia Ministries, two are partially reported, and three are not reported. Data used to develop these indicators were drawn from relevant databases of Statistics Canada, the Canadian Institute for Health Information, Health Canada, and the British Columbia Ministries. I am unable to provide an opinion on 18 indicators for the following reasons. The problems identified below are common to all jurisdictions, with the exception of the three indicators derived from the British Columbia Ministry databases:

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Five indicators are based on the Canadian Institute for Health Information (CIHI) databases. They are:

- Total hip replacement rate
- Total knee replacement rate
- Re-admission rate for acute myocardial infarction (AMI)
- Re-admission rate for pneumonia
- Hospitalization rate for ambulatory care sensitive conditions

At this time, I am unable to provide an opinion on the accuracy of the data and the adequacy of disclosure on limitations of the data drawn from the Discharge Abstract/Hospital Morbidity database of the Canadian Institute for Health Information for the above indicators. I am unable to provide an opinion because of a lack of documentation of the CIHI quality assurance process, and because a three-year re-abstraction study, which will provide information on the quality of input data, will not be completed for another two years.

Two indicators were drawn from Statistics Canada based on data from CIHI:

- 365-day net survival rate for AMI
- 180-day net survival rate for stroke

For these indicators, Statistics Canada uses as one of its data sources the Discharge Abstract Database maintained by CIHI. As Statistics Canada has not made a formal determination of the quality of data it receives from this database, I am unable to provide an opinion on the accuracy of the data or on the adequacy of disclosure for the two indicators.

National data for eight disease surveillance indicators were drawn from three Health Canada databases:

- Invasive meningococcal disease incidence rate
- Measles incidence rate
- Haemophilus influenza b (invasive) disease incidence rate for children
- Prevalence of diabetes
- Tuberculosis incidence rate
- Reported HIV diagnoses
- Verotoxogenic E. coli incidence rate
- Chlamydia incidence rates

Participation in these databases is voluntary, and there is a lack of formal federal/provincial/territorial agreements on sharing, data standards and data definitions. The quality assurance processes for these databases are inadequate to ensure the accuracy of the data. Therefore, I am unable to provide an opinion on the accuracy of the data or the adequacy of disclosure for these indicators.

Data for three indicators listed below were drawn from the British Columbia Ministries' own databases:

- Admissions to publicly-funded home care services
- Wait times for hip replacement surgery
- Wait times for knee replacement surgery

The quality assurance processes for the Ministries' databases are inadequate to ensure the accuracy of these data. Therefore, I am unable to provide an opinion on the accuracy of the data or the adequacy of disclosure for these indicators.

Limitations

The Ministries have reported that three indicators required by the definitions established by the Conference of Deputy Ministers ("the definitions") could not be presented because the source data are not presently available. They are:

- Utilization of home care services
- 30-day acute myocardial infarction mortality rate
- 30-day stroke mortality rate

The Ministries have reported that two indicators required by the definitions could not be fully reported because source data are not presently available. They are:

- Wait time for radiation therapy for breast cancer
- Wait time for radiation therapy for prostate cancer

The Ministries' data contain departures from the definitions for measurement and disclosure for the following indicators:

- Wait times for cardiac surgery
- Wait times for hip and knee replacement surgery

The Ministries have disclosed the nature of these departures in their report.

The British Columbia report includes one comparative indicator relating to other provinces (Age-standardized admissions per 100,000 population to publicly-funded home care). Due to time limitations, I did not perform any audit procedures on the data from the other provinces.

This report on indicators represents a significant step forward in providing accountability information about the health sector to Canadians. I am encouraged by the work undertaken by the Ministries of Health in the preparation of the first nationally-comparable health indicator report. I look forward to working with the Ministries to ensure such reporting continues and strengthens.

Wayne Strelioff

Wayne Strelioff, CA
Auditor General

Victoria, British Columbia
September 26, 2002

ANNEX – *Audit Criteria*

Complete

The health indicators reported meet all the performance measurement and reporting requirements of the commitment of the First Ministers' Meeting Communiqué on Health. The performance indicators comply with the definitions, technical specifications and standards of presentation approved by the Conference of Deputy Ministers.

Accurate

The health indicators reported adequately reflect the facts, to an appropriate level of accuracy.

Adequate Disclosure

The health indicators are defined and, their significance and limitations explained. The report states and properly describes departures from what was approved by the Conference of Deputy Ministers and explains and plans for the future resolution of the non-compliance issues.

The Ministries of Health Services and Health Planning have acknowledged these criteria are suitable for the purposes of my audit.

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INTRODUCTION

This is British Columbia's first report on nationally comparable health and health system indicators. This report is part of an agreement that was reached by Premiers and the Prime Minister in September 2000 to provide clear accountability reporting to Canadians on our public health systems. At that time, Premiers and the Prime Minister committed to report on fourteen specific indicator areas, covering health status, health outcomes, and quality of service.

Over the past two years, federal/ provincial/ territorial representatives have worked to identify and develop comparable indicators within each of these fourteen indicator areas. In September 2002 at a meeting of Ministers of Health, the resulting plan was approved. All jurisdictions worked closely with Statistics Canada and the Canadian Institute for Health Information (CIHI), which assisted with data and helped develop consistent definitions. In some cases, indicators were easy to identify (for example, life expectancy and infant mortality). In other cases, new indicators had to be developed, and for some of these, information is not available from all provinces and territories for this initial report.

Of the 67 indicators that were identified for reporting in 2002, British Columbia is reporting fully on 62, and partly on two others. British Columbia intends to fully report on all 67 indicators in the next report. In this initial report no other province is able to report on so many indicators in this initial report. B.C.'s ability to provide this information indicates the high priority that our province places on monitoring and accountability in our health system.

The purpose of this report is to identify areas where British Columbia is faring relatively well, as well as areas where our province needs to improve. However, provinces and territories are working together to make data more comparable so that similar studies in the future will give a better comparative picture across the country.

The time periods covered by the data vary from one indicator to another. This reflects the many different sources of information that have been used to develop this report. In each case, the most recent year of information that was available for comparative purposes is used, and time trends of up to 20 years are provided where that information is available. In some cases, more recent British Columbia data is available from other sources, and interested readers are encouraged to consult the web-sites of the Ministries of Health Services and Health Planning (http://www.gov.bc.ca/healthplanning/; http://www.gov.bc.ca/healthservices/) for publications such as annual reports, service plans, the reports of the Provincial Health Officer and other reports providing health statistics.

To assure the public of the accuracy of the indicator reports, each jurisdiction has arranged for an independent third party to verify the report. In British Columbia, the provincial Auditor General has reviewed this report and provided an opinion on the accuracy and presentation of the indicators.

Because of the complexity of the topics covered in this report, it is necessarily quite technical. In order to provide a more accessible and less technical set of highlights for the general public, a brochure also entitled "How Healthy Are We?" has been prepared by the B.C. Government.

Although it is impossible for a single report to cover every aspect of the health care system, this report will help British

Columbians get a clear sense of how healthy we are, the quality and accessibility of health services, and the outcomes of those services. By monitoring our health system and reporting on its performance, government and those who deliver health care services will be in a stronger position than ever before to identify key areas requiring improvement. This will help us develop better services and a more sustainable system which will ultimately assist us in achieving our highest goal: to improve the health of British Columbians.

Responsibility for the integrity of this report rests with the Minister of Health Planning. In preparing the report, the deputy minister and ministry staff have relied on information provided by external organizations, as indicated in the report. To the best of our knowledge, the information is reliable and free from error; however, we are also aware that health indicators data needs to be improved. This report is consistent with all significant requirements for reporting on comparable health indicators, as agreed by ministers of health.

1. Life Expectancy

Life expectancy is defined as the number of years a person would be expected to live, starting from birth (for life expectancy at birth) or at age 65 (for life expectancy at age 65), on the basis of the mortality statistics for a given observation period, typically a calendar year.

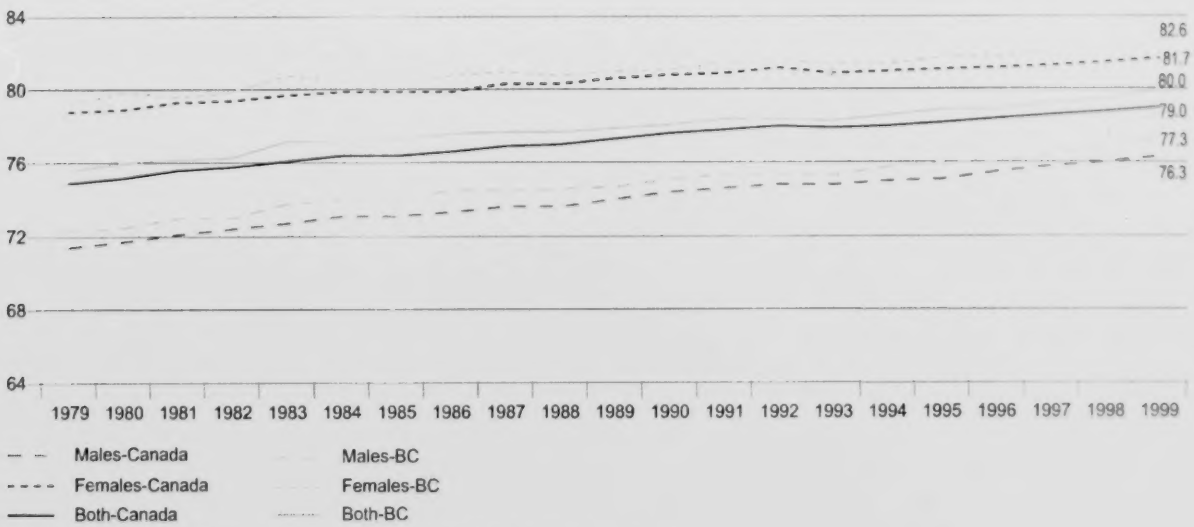
Life expectancy is a widely-used indicator of the health of a population. In developed countries, life expectancy is higher for women than for men, and is related to socio-economic factors such as poverty and education levels. The highest life expectancies in the world in 1999 were in Japan: 84.1 for women, and 77.3 for men (*United Nations, Human Development Report* 2001).

It should be noted that life expectancy is an indicator of the quantity rather than the quality of life. Living longer while suffering from a debilitating disease may not be judged as worthwhile as the same increase in life expectancy where the added years are lived in good health.

Life expectancy is a standardized statistical indicator. It is not the number of years a particular newborn (or person currently age 65) can actually expect to live. The reason is that mortality rates only for the observation period (e.g., 1999) are used, and these are averages for the entire population. Historically, mortality rates in Canada have been falling, so that the mortality rates individuals are likely to face in future years as they age may be lower. And individuals' circumstances vary so that, for example, if they had been a long-time smoker, or had a family history of disease, their particular life expectancy would be less.

Both Canada and British Columbia have

Life Expectancy at Birth by Sex,
Canada and British Columbia, 1979-1999



Source: Statistics Canada, Vital Statistics, Death Database and Demography Division (population estimates); ISQ
Notes:
1. Numbers on chart indicate most recent year available data.
2. Missing data on sex were imputed based on birth or death registration number.

experienced a steadily rising trend in life expectancy at birth. In British Columbia, life expectancy at birth increased by over four years between 1979 and 1999 (5.0 years for males, and 3.4 years for females). With both genders combined, the British Columbia life expectancy at birth increased from 75.6 years in 1979 to 80.0 years in 1999. The Canadian rate for both genders increased from 74.9 to 79.0 during the same period.

Life expectancy at birth was consistently higher for females than for males throughout the 1979 to 1999 period in both British Columbia and Canada. In British Columbia, female life expectancy in 1999 was 82.6; the rate for males in 1999 was 77.3. In Canada the rate for females was 81.7 in 1999; males were lower at 76.3.

1b. Disability-free Life Expectancy (DFLE)

Disability-free life expectancy is defined as the number of years an average individual would be expected to live free of moderate or severe disability, starting from birth (for DFLE at birth) or at age 65 (for DFLE at age 65), on the basis of the mortality statistics and disability prevalence patterns by age and sex for a given observation period, typically a calendar year.

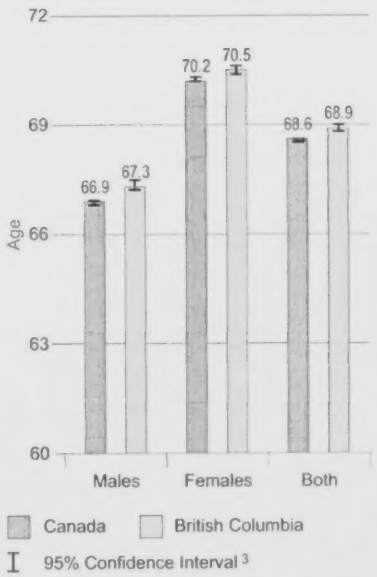
DFLE is an increasingly used indicator, and complements conventional life expectancy measures. It was developed to reflect the fact that not all years of a person's life are typically lived in perfect health. Chronic disease, frailty, and disability tend to become more prevalent at older ages, so that a population with a higher life expectancy may not be healthier.

Indeed, a major question with an aging population is whether increases in life expectancy will be associated with a greater or lesser proportion of the future population spending their years living with disability. If DFLE is increasing more rapidly than life expectancy in a population, then not only are people living longer, they are also living a greater portion of their lives free of disability.

While various thresholds are possible, disability here is specified as moderate and severe disability, plus living in an institution. Thus, anyone with moderate or severe disability or who lives in an institution is counted as disabled, and everyone else, even with some disability, is counted as not disabled.

For this report, DFLE has been calculated only for the most recent data year available (1996); as such, trends indicated by comparisons over time are not available. However, future reports should allow for such comparisons.

Disability-free life expectancy at birth (DFLE), Canada and British Columbia, 1996



Source: Statistics Canada, Vital Statistics, Births and Deaths data bases; ISQ

Notes:
1. Non-residents are excluded from the deaths and population estimates used for the life tables. In addition, individuals living on military bases or First Nation reserves are excluded from the health survey and are thus implicitly treated as having the same average rates of disability as the rest of the population.
2. The estimates are based on three years of death data (1995 to 1997), questions on activity limitations from the 1996 Census, and the 1996 population estimates. The reference period associated with these data reflects the mid-point of the three-year period (1996).
3. Range lines at the end of bars indicate the 95% confidence interval (CI), which illustrate the degree of variability associated with a rate. Wide confidence intervals indicate high variability, thus, these rates should be interpreted and compared with due caution.

British Columbia's DFLE for both genders combined was 68.9 years in 1996. Females in British Columbia at 70.5 years have a longer DFLE than males at 67.3 years. British Columbia's DFLE at birth is slightly higher than the Canadian rate for all categories.

2. Infant Mortality

Infant mortality is defined as the number of infants who die in the first year of life, expressed as a rate (per 1,000 live births) for that year.

The infant mortality rate is a long-established measure of child health that also indicates the well-being of a society. It reflects not only the level of mortality, but also the health status and health care of population, the effectiveness of preventive care and the attention paid to maternal and child health, as well as broader social factors such as maternal education, smoking, and relative deprivation. The average infant mortality rate in 1997 for 29 of 30 developed countries was 7.3 infant deaths per 1,000 live births, compared with 5.5 per 1,000 in Canada (OECD). Among developed countries, an infant mortality rate of less than 4.0 per 1,000 is considered exceptionally good. Only Japan and Iceland had achieved such low rates by 1996. Low birth weight in Canada is now the principal risk factor associated with infant mortality. Pre-term births account for approximately 75-85 percent of all perinatal mortality in Canada (*Canadian Perinatal Health Report*, 2000).

Infant mortality rates in British Columbia and in Canada as a whole have experienced a downward trend over the 1979 to 1999 period. In 1999, female infants in British Columbia had a lower mortality rate than males (3.4 and 4.2 per 1,000 births respectively). Female infants in Canada also had lower mortality rates than male infants at 4.8 and 5.7 per 1,000 births in 1999. In 1999, the combined infant mortality rate was 3.8 in British Columbia and 5.3 in Canada.

Infant mortality rates,
Canada and British Columbia, 1979-1999

Source: Statistics Canada Catalogue 84F0210XPB, Births and Deaths and Statistics Canada web site, ISQ

Notes:

1. Infant mortality corresponds to the death of a child under one year of age.
2. Counts and rates in this graph exclude: births to mothers not resident in Canada; births to mothers resident in Canada, province or territory of residence unknown; deaths of infants not resident in Canada; and deaths of infants resident in Canada, province or territory of residence unknown.
3. Borderline viable birth weight-adjusted infant death counts in this chart are calculated by subtracting the number of live births with a birth weight of less than 500 grams from the standard infant death counts in the same year.
4. Numbers on chart indicate most recent year available data.

3. Low Birth Weight

Low birth weight is defined as the proportion of live births (birth weight known) with a birth weight less than 2,500 grams and at least 500 grams.

Low birth weight is an indicator of the general health of newborns, and a key determinant of infant survival, health and development. Low-birth-weight infants are at a greater risk of dying during the first year of life, and if they survive, they are at greater risk of disability and diseases such as cerebral palsy, visual problems, learning disabilities, and respiratory problems. Low birth weight is associated with multiple births (twins, triplets, etc.), pre-term births, poor maternal health, lifestyle and economic circumstances. It is also associated with assisted conception (and related multiple births).

Appropriate medical care and a healthy lifestyle for the mother can improve birth-weight outcomes. It should be noted that

Percentage of live births with low birth weight,
Canada and British Columbia, 1979-1999

Source: Statistics Canada, Vital Statistics, Birth database, ISQ

Notes:

1. Counts and rates in this table exclude: births to mothers not resident in Canada; births to mothers resident in Canada, province or territory of residence unknown; births with unknown birth weight.
2. Data in this graph are borderline viable birth weight adjusted. This adjustment is performed by subtracting the number of live births with a birth weight of less than 500 grams from the standard low birth weight counts in the same year and dividing by (live birth counts for the same year with a known birth weight greater than 499 grams).
3. Numbers on chart indicate most recent year available data.

a potentially confounding factor is variations in the ethnic composition of the population since some ethnic groups tend to have babies of lower weight, even though these infants are otherwise healthy.

The low-birth-weight rate in 1997 for 26 of 30 developed countries was 6.1 percent of live births, compared with 5.8 percent in Canada (OECD). Among developed countries, a low-birth-weight rate of less than 5.0 is considered good.

Over time, there has been improved reporting of live births under 500 grams; to improve comparability over time in reporting on low birth weight, births under 500 grams are excluded.

Births with unknown birth weights are also excluded from the calculation.

In 1999 the British Columbia rate was 4.7 percent; the Canadian rate was 5.5 percent.

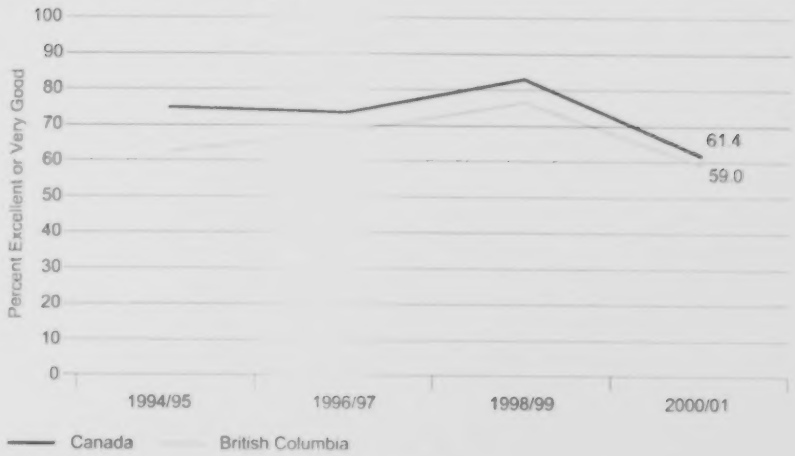
4. Self-reported Health

Self-reported health is defined as the percentage of the population aged 12 and older who report that their health is very good or excellent. This indicator applies to individuals age 12 years old and older living in private households.

Self-reported health is a general indicator of the overall health status of individuals. It can include what other measures may miss: incipient disease, disease severity, some aspects of positive health status, physiologic/psychological reserve, social and mental function.

Self-reported health data are collected using a five-point reporting scale, ranging from excellent to poor. Studies indicate that when individuals rate their health in response to this question, they are actually providing important information related to chronic disease incidence, functional decline, and ultimately survival. Numerous long-term studies have found that self-reported health predicts mortality

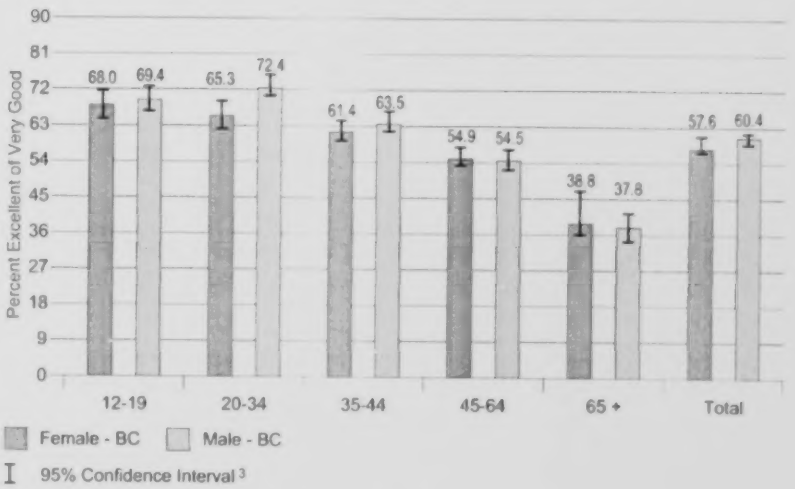
Self-reported health, population age 12 and over, Canada and B.C., 1994/95 - 2000/01



Source: Canadian Community Health Survey – Cycle 1.1 – 2000/2001; National Population Health Surveys (1994-95 to 1998-99), ISQNotes:

1. Excludes persons living on First Nation Reserves and on Crown lands, residents of institutions, full-time member of Canadian Armed Forces and residents of certain remote regions.
2. Population aged 12 and over who rate their own health status as being either excellent, very good, good, fair or poor.
3. Numbers on chart indicate most recent year available data.

Self-reported health by age and sex, population age 12 and over, B.C., 2000/2001



Source: Canadian Community Health Survey — Cycle 1.1 — 2000/2001

Notes:

1. Excludes persons living on First Nation Reserves and on Crown lands, residents of institutions, full-time members of Canadian Armed Forces and residents of certain remote regions.
2. Population aged 12 and over who rate their own health status as being either excellent, very good, good, fair or poor.
3. Range lines at the end of bars indicate the 95% confidence interval (CI), which illustrate the degree of variability associated with a rate. Wide confidence intervals indicate high variability; thus, these rates should be interpreted and compared with due caution.

even when more objective measures such as clinical evaluations are taken into account. Inconsistencies between self-reported health data from population surveys and best estimates from epidemiological studies (under-reporting of undiagnosed conditions, over-reporting of some conditions, lack of information on condition severity) may explain why measures of self-reported health do not have credibility with all groups.

In 2000/2001, nationally, an estimated 61.4 percent of Canadians rate their own health as very good or excellent, while in BC an estimated 59.0 percent did so. The difference is not statistically significant.

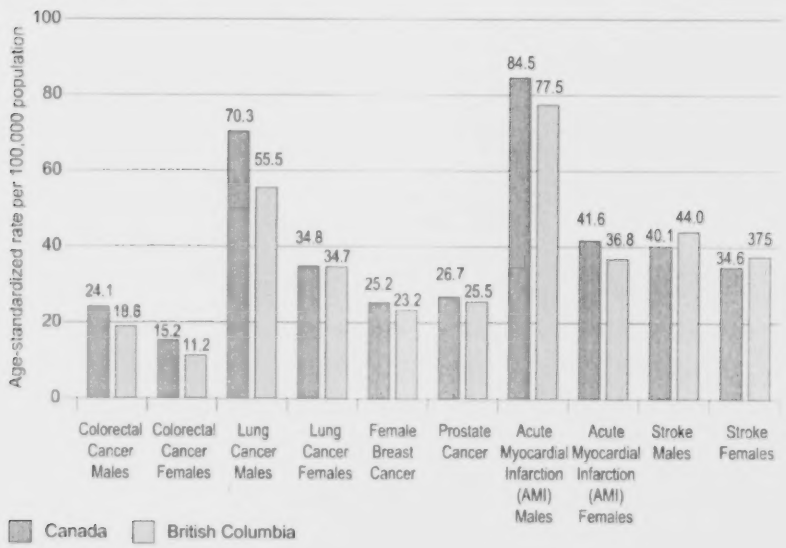
The percentage of people rating their health as very good or excellent declines with age. In particular, only 38.8 percent of British Columbia women, and 37.8 percent of men, aged 65 or older rated their health this way, compared with 65.3 percent of women and 72.4 percent of men between 20 and 34 years old. A similar decline is seen nationally.

Indicators in this area are intended to reflect the impact of health system programs and services on health status. The extent to which particular health outcomes are attributable to health programs and services is difficult to assess based on indicator data alone. Where possible, indicators have been selected where the link between particular interventions and impact on health outcomes has been well-established through research.

The three health-outcome areas in this section are linked, focusing primarily on indicators for several large disease groups of considerable interest to the public: cancer, heart disease, and stroke. These indicators fit together to "tell the story." For example, incidence (i.e., the number of newly-diagnosed cases in a population) and mortality rates show the overall burden of disease for these conditions and provide context for survival rates. Short- and longer-term survival measures reflect the impact of acute care and longer-term care, respectively, and together, show where, and to what extent, the health system makes a difference to survival. Potential years of life lost (PYLL) reflect the extent of success in preventing premature loss of life due to these specific causes.

Although some health system interventions literally save lives, most interventions are designed to improve health-related quality of life. This, for example, is the intended outcome of joint-replacement surgery, and research evidence supports the effectiveness of this surgery in improving health-related quality of life. Hip and knee replacement surgery rates are being used in this document as surrogate indicators of improved quality of life, until a broader range of measures indicating patient function and pain, associated with various health conditions, are in place across the country.

Mortality rates for colorectal, lung, breast and prostate cancer, AMI and stroke by sex,
Canada and B.C., 1999



Source: Statistics Canada, Vital Statistics, and Demography Division (census population estimates); ISQ
Notes:
Excludes deaths of non-residents of Canada.
The 1991 Canadian population is used as the standard population.

5. Change in Life Expectancy

5a. Age-standardized Mortality Rates for Lung, Prostate, Breast, and Colorectal Cancer, Acute Myocardial Infarction (AMI) and Stroke

Age-standardized mortality rates for lung, prostate, breast, and colorectal cancer, AMI and stroke are defined as the number of deaths of individuals where the underlying cause of death is one of those specified, per 100,000 population. These are rates that would have occurred in the standard population if the actual age-specific rates observed in a given population had occurred in the standard population.

Age-standardization controls for a bias that may be introduced by comparing relative survival estimates amongst provinces with different patient age distributions.

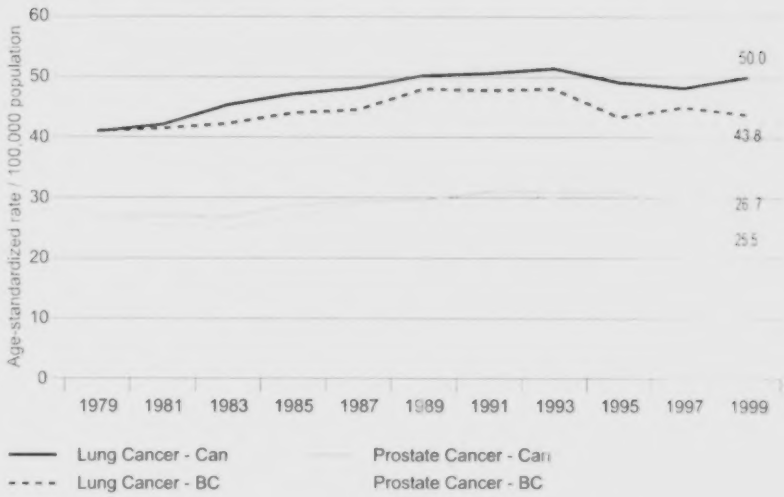
Age-standardized cancer or AMI or stroke death-rate trends may indicate long-term success in reducing deaths from these diseases, compared with other provinces and countries. Lower death rates indicate success in cancer or cardio-vascular disease prevention, detection, and treatment.

When looking at the 20-year time trends (1979-1999) for age-standardized mortality rates the most striking feature is the significant improvement in the mortality rates attributable to acute myocardial infarction (AMI), which have gone from 131.7 to 54.8 in British Columbia and from 148.1 to 60.2 Canada-wide. The rates for stroke have also decreased substantially, from 60.8 to 40.4 in British Columbia and from 64.5 to 37.0 in Canada.

Among the cancer diagnoses, the mortality rates for colorectal and female breast cancer declined between 1979 and 1999 in both British Columbia and Canada. The rate for colorectal cancer went from 23.3 to 14.7 in British Columbia and from 25.6 to 19.1 in Canada. The mortality rates for prostate cancer did not change nationally, and decreased only slightly for BC. Only the rates for lung cancer, a highly preventable disease, have increased, climbing from 40.9 in 1979 to 50.0 in Canada in 1999. The increase was less in British Columbia. In 1979 the British Columbia mortality rate for lung cancer was 41.0. Twenty years later, the British Columbia rate was 43.8.

For each of these selected diagnoses, with the exception of female breast cancer, the mortality rate for males exceeds the rate for females for the same diagnosis. This is true in both British Columbia and Canada.

Mortality rates for lung and prostate cancer,
Canada & B.C., 1979-1999



Source: Statistics Canada, Vital Statistics, and Demography Division (census population estimates); ISQ
Notes:
1. Excludes deaths of non-residents of Canada.
2. Numbers on chart indicate most recent year available data.
3. The 1991 Canadian population is used as the standard population.

Mortality rates for colorectal and female breast cancer,
Canada and British Columbia, 1979-1999

Source: Statistics Canada, Vital Statistics, and Demography Division (census population estimates); ISQ
Notes:
1. Excludes deaths of non-residents of Canada.
2. Numbers on chart indicate most recent year available data.
3. The 1991 Canadian population is used as the standard population.

5b. Five-year Age-standardized Relative Survival Rates for Lung, Prostate, Breast, and Colorectal Cancer

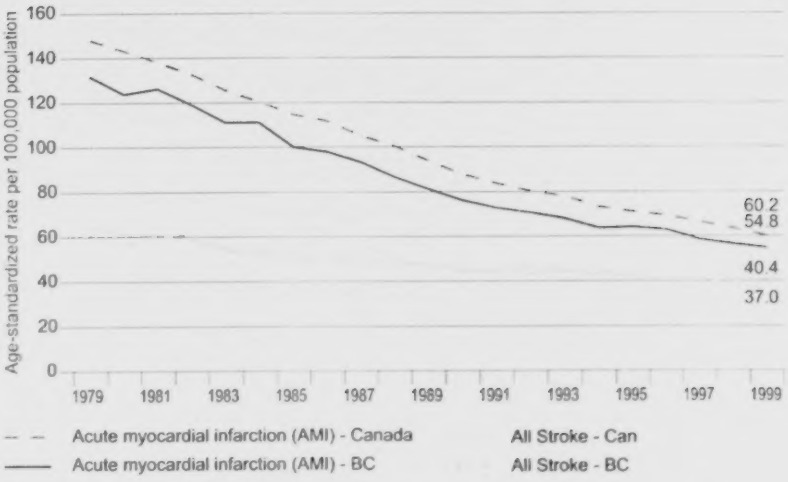
Five-year age-standardized relative survival rates for lung, prostate, breast, and colorectal cancer are defined as the ratio of the observed survival in the group of cancer patients under study five years after diagnosis and the survival that would have been expected had they been subject only to the mortality rates of the general population similar in characteristics such as age, sex, and geographic place of residence.

Relative survival is the most widely used method for analyzing the survival of cancer patients in population studies. It reflects the added likelihood of mortality of those diagnosed with cancer.

Age-standardization controls for a bias that may be introduced by comparing relative survival estimates amongst provinces with different patient age distributions.

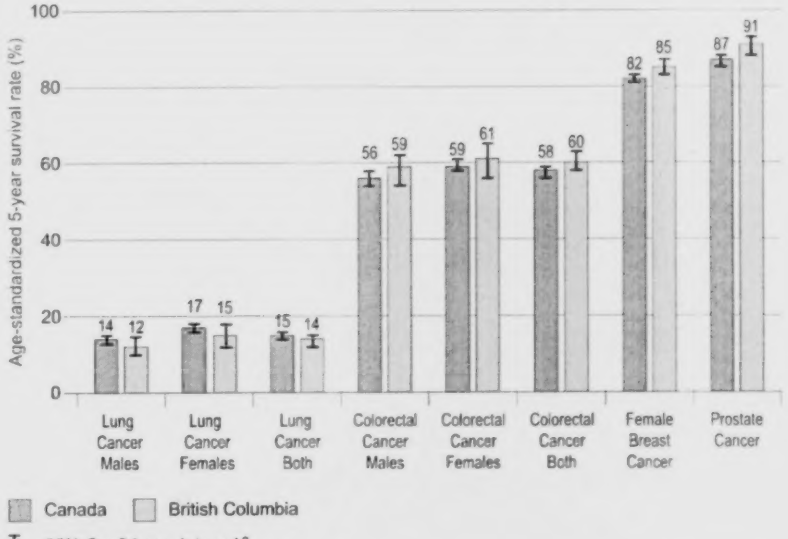
The relative survival rate is influenced by two distinct factors: the severity (stage) of the cancer at the time of diagnosis, and the effectiveness of cancer treatment after diagnosis. While the indicator does not shed light on the relative importance of these two kinds of factors, from the viewpoint of interpreting this indicator, these two factors work in the same direction. For example, an improvement in screening would result in cancers being detected at an earlier stage, where treatments are generally more successful, resulting in better observed survival. And if there had not been a significant change in screening, better observed survival would indicate more effective and successful cancer treatment after diagnosis. This interpretation issue is currently being addressed by the addition of "staging" data to the cancer registry systems. Cancer staging data indicates how advanced (serious) the cancer is at the time of diagnosis.

Mortality rates for AMI and stroke,
Canada and British Columbia, 1979-1999



Source: Statistics Canada, Vital Statistics, and Demography Division (census population estimates); ISQ
Notes:
1. Excludes deaths of non-residents of Canada.
2. Numbers on chart indicate most recent year available data.
3. The 1991 Canadian population is used as the standard population .

Five-year age-standardized relative survival rates for lung, prostate, breast and colorectal cancer, population aged 15 to 99, by sex,
Canada and British Columbia, 1997



Source: Statistics Canada, Canadian Cancer Registry, Canadian National Mortality Data Base, and Canadian and provincial life tables (1990-1992); ISQ

Notes:
1. Excludes: subjects with an unknown year of birth or death; subjects younger than 15 or older than 99 years of age at diagnosis; subjects diagnosed through autopsy or death certificate only; patients diagnosed with a primary invasive cancer before 1992.
2. Québec data were not included in the national estimates of five-year relative survival because their method of ascertaining the date of diagnosis of cancer cases differs substantially from that of other provincial cancer registries.
3. Range lines at the end of bars indicate the 95% confidence interval (CI), which illustrate the degree of variability associated with a rate. Wide confidence intervals indicate high variability, thus, these rates should be interpreted and compared with due caution.

Prostate, breast, lung, and colorectal cancer are reported because they represent the four most common cancer sites. In particular, lung cancer relative-survival rates are reported to inform the public of the poor prognosis of this cancer. The fact that health system interventions with lung cancer are not very successful underscores the need to emphasize preventive strategies.

It should be noted that variations in the use of prostate cancer screening (prostate-specific antigen or PSA testing) have affected incidence rates of prostate cancer over the past 10 years, and this may have an impact on survival rates. At the same time, however, available survival data are from 1992, just at the beginning of widespread PSA testing.

Men diagnosed with prostate cancer and female breast cancer patients have the highest relative five-year survival rates among the selected cancers. The survival rate for prostate cancer was 91 percent in British Columbia and 87 percent in Canada. The survival rate for female breast cancer was 85 percent in British Columbia and 82 percent in Canada. Lung cancer has the lowest five-year relative-survival rate (14 percent in BC and 15 percent in Canada for both genders combined).

5e. 365-day Net Survival Rate for AMI and 5f. 180-day Net Survival Rate for Stroke

The 365-day net survival rate for acute myocardial infarction (AMI) and the 180-day net survival rate for stroke apply to individuals with an incident case of AMI or stroke and are estimated using the cause-specific survival rate. In the case of AMI, survival is at least 365 days after initial admission to hospital, while for stroke, survival is for at least 180 days. The net survival rate measures mortality due to AMI or stroke, i.e., survival where the only possible underlying cause of death is the disease in question.

Cardiovascular disease is the major cause of death in Canada. Cardiovascular diseases caused 36 percent of all deaths in 1998, with AMI accounting for 10 percent and all strokes, about 7 percent. These diseases exact high personal, community, and health care costs.

In Canada, as in many countries, there has been a decades-long decline in mortality rates for AMI and stroke. It is not known how much of this decline is due to a change in the underlying incidence of these diseases, which would reflect changes in lifestyle and risk factors, or to an improvement in survival brought on by improved treatment.

Over 10 years ago, the Nova Scotia-Saskatchewan Epidemiology Group showed incidence and survival can be determined by creating person-oriented health information from administrative data on the health care encounters of individual patients.

The choice of 365- and 180-day follow-up for AMI and stroke respectively is somewhat arbitrary. These periods are long enough to include fatalities that occur almost immediately after the event and over a longer period. They therefore reflect not only trends in the severity of the AMI and stroke themselves but also reflect both immediate emergency care and longer-term health care follow-up.

This is a new indicator and a Canadian average is not available because Statistics Canada was only able to obtain comparable data from four provinces. The British Columbia information is shown below. In future years we will be able to track changes to the net survival rates over time and also to make comparisons to the Canadian average.

6. Improved Quality of Life

The intended outcome of most elective surgery is improved health-related quality of life. Recent research in BC specifically examined the appropriateness and health-related outcomes of several types of elective surgery; over 6,200 surgical episodes were assessed. Results demonstrated that health-related quality of life improved substantially for the great majority of those receiving any of six different elective procedures. Over 94 percent of those receiving a hip replacement reported significant reduction in pain and stiffness and improved overall functioning. (Charles J. Wright and Yoel Robens-Paradise. *Evaluation of Indications and Outcomes in Elective Surgery.* May 2001. Centre for Clinical Epidemiology and Evaluation, Vancouver Hospital and Health Services Centre.)

Net survival rates for AMI and stroke
British Columbia, 1997

			95% C.I.	
		Rate	Low	High
180-day	Both Sexes	86.7	85.1	88.3
Net Survival	Men	86.5	84.3	88.7
Stroke	Women	87.1	84.8	89.4
365-day	Both Sexes	91.3	90.5	92.1
Net Survival	Men	91.6	90.7	92.5
AMI	Women	89.8	87.7	91.9

Source: Statistics Canada, Person-oriented health information and Canadian Vital Statistics, Death Database
Notes:
1. Net survival describes the mortality attributable to a stroke or AMI. Net survival is estimated using cause-specific survival. In the case of the category "stroke", survival is at least 180 days after initial admission to hospital. In the case of the category "AMI", survival is at least 365 days after the initial admission to hospital.
2. Estimates of net survival for British Columbia are adjusted for different inpatient practices for hospital discharge data.
3. Estimates are age and sex-standardized to the 1991 Canadian Census of Population.
4. The following are excluded: non-residents, persons not admitted as inpatients; admissions outside British Columbia; persons suffering an AMI in the previous 3 years; for AMI, persons whose initial hospitalization episode was less than 3 days; for stroke, persons suffering from a stroke in the previous year.
5. The 95% confidence interval (CI) illustrates the degree of variability associated with a rate. Wide confidence intervals indicate high variability, thus these rates should be interpreted and compared with due caution.
6. Survival is estimated using the Kaplan-Meier method, with patients whose estimated underlying cause of death was not AMI or stroke treated as censored observations. Confidence intervals are constructed using Greenwood's formula.

Due to limitations of existing databases, intervention rates for joint replacement are being used as surrogate indicators of health-related quality of life for reporting in 2002.

6a. Total Hip Replacement Rate
6b. Total Knee Replacement Rate

Total hip replacement is defined using an age-standardized rate of total unilateral or bilateral hip replacement surgery performed on inpatients in acute care hospitals.

Total knee replacement is defined using an age-standardized rate of total unilateral or bilateral knee replacement surgery performed on inpatients in acute care hospitals.

The age-standardized rate for total hip replacement in British Columbia is 64.2 per 100,000 population in 1999/2000; the Canadian rate is 59.5. The age-standardized rate for total knee replacement in British Columbia (65.0) is almost the same as the Canadian rate (65.6). Females are more likely than males to have either total hip replacement surgery or total knee replacement surgery. This is true for both British Columbia and Canada.

In the five-year period from 1995/96 to 1999/00, female rates for total knee replacement surgery went from 61.3 to 71.4 in Canada and from 59.0 to 69.9 in British Columbia. The male rates went from 48.9 to 59.0 in Canada and from 53.9 to 59.9 in British Columbia.

For total hip replacement surgery, the Canadian rate for females went from 59.4 to 62.0. The British Columbia rate dropped from 69.8 to 66.8 over the five-year period.

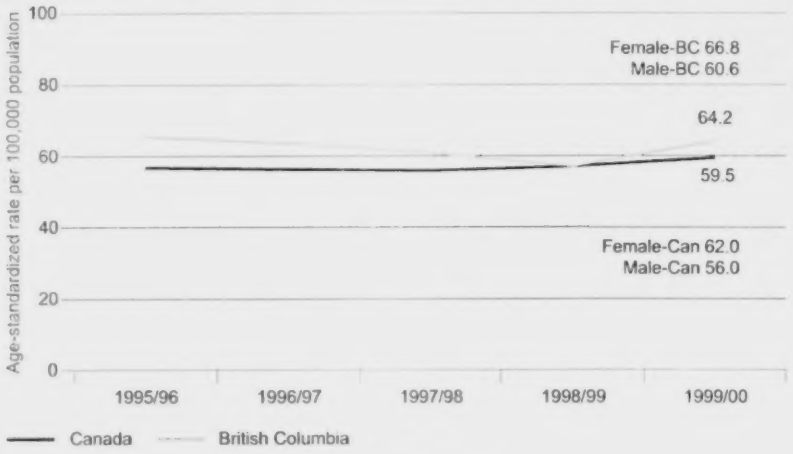
7. Reduced Burden of Disease, Illness, and Injury

7a. Age-standardized Incidence Rates for Lung, Prostate, Breast, and Colorectal Cancer

Age-standardized incidence rates for lung, prostate, breast, and colorectal cancer are defined as the number of newly-diagnosed primary cancer cases in a given year for specific sites per 100,000 that would have occurred in the standard population if the actual age-specific rates observed in a given population had occurred in the standard population.

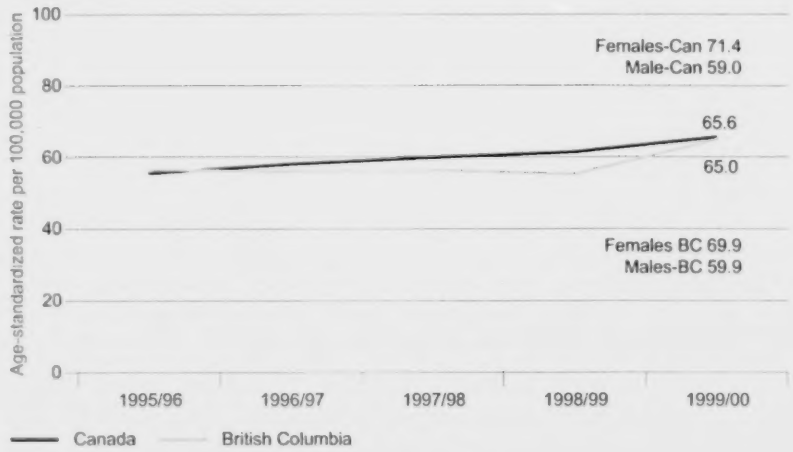
Age-standardized incidence rates measure the appearance of new cancers. This

Total hip replacement rate,
Canada and B.C., 1995/96 - 1999/00



Sources: Hospital Morbidity Database, CIHI, Canada Census, Statistics Canada; ISQ
Notes:
1. Excludes patients not treated as inpatients in acute care hospitals and those who received surgery prior to admission.
2. Numbers on chart indicate most recent year available data for both jurisdictions.
3. Data for 2001 are available for British Columbia.

Total knee replacement rate,
Canada and B.C., 1995/96 - 1999/00



Sources: Hospital Morbidity Database, CIHI, Canada Census, Statistics Canada; ISQ
Notes:
1. Excludes patients not treated as inpatients in acute care hospitals and those who received surgery prior to admission.
2. Numbers on chart indicate most recent year available data for both jurisdictions.
3. Data for 2001 are available for British Columbia.

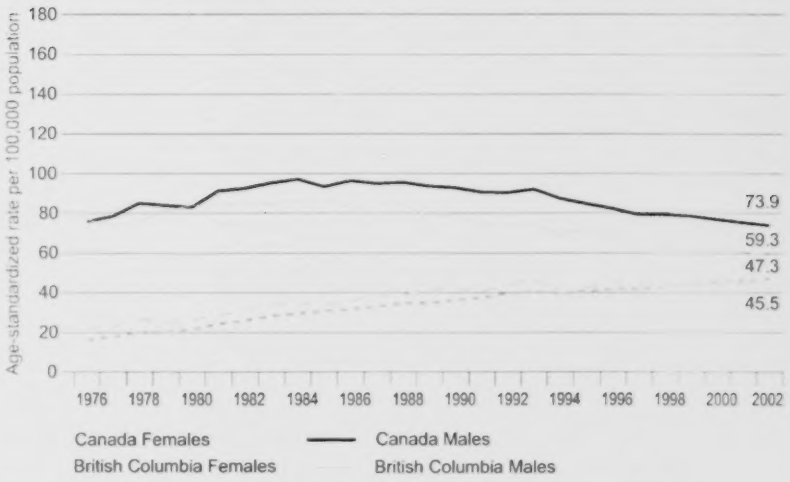
incidence rate is influenced by two main factors: the underlying rate of cancer incidence, which in turn reflects, in part, the prevalence of risk factors such as smoking, and hence the success of primary prevention efforts; and the rate of detection and diagnosis of cancers, which in turn can be influenced by the intensity and effectiveness of cancer-screening programs.

Unfortunately from the viewpoint of interpreting this indicator, these two factors work in opposite directions. For example, an increase in measured cancer incidence could reflect either a deterioration in healthy life style or an improvement in screening. However, this latter kind of "screening artifact" is unlikely to carry on for a long period of time so that generally, a declining incidence of cancer suggests a positive change in population health. This interpretation issue is being addressed by the addition of "staging" data to the cancer registry systems, thus providing, information on how advanced (serious) the cancer is at the time of diagnosis.

As a general comment on using incidence figures, there is an increasing awareness that a successful decrease in one disease may simply lead to an increase in the incidence of some other conditions, with no net benefit. Therefore, when one cause of death or disability is replaced by another, it is important to know if there is a net increase in life span or if there is a significant gap in time between the decrease in mortality for one cause and the increased mortality for another. Moreover, the quality of health during the remaining years is also crucial. Aggregated measures of health such as PYLL (potential years of life lost, Indicator 7b) and DFLE (disability-free life expectancy, Indicator 1b) help to address this issue.

The incidence rate for female lung cancer in both British Columbia and Canada has more than doubled between 1976 and 2002. The rate for males has fallen during the period, more so for British Columbia than for Canada. In 2002 the rates for males

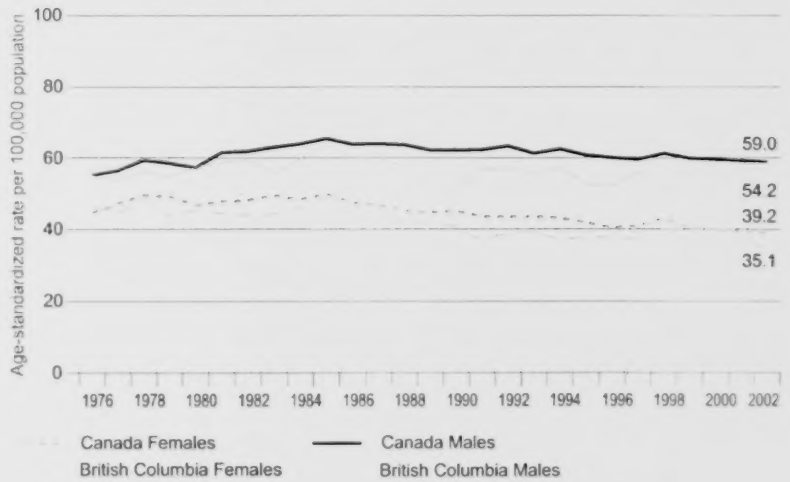
Incidence rates for lung cancer, by sex,
Canada and British Columbia, 1976-2002 (projected)[1]



Source: Statistics Canada, Canadian Cancer Registry, and Demography Division (census population estimates); ISQ

Notes:
1. Year 1998-2002 data are estimates/forecasts, produced by Health Canada through extrapolation of cancer incidence data from the National Cancer Incidence Reporting System (NCIRS, 1969-91) and the Canadian Cancer Registry.
2. Numbers on chart indicate most recent year available data.
3. Disease is classified in relation to World Health Organization, International Classification of Diseases, 9th Revision (ICD-9).
4. Cancer incidence rates are age-standardized using the direct method and the 1991 Canadian Census population structure. The use of a standard population results in more meaningful incidence rate comparisons, because it adjusts for variations in population age distributions over time and across geographic areas.
5. Exclusions: Non-residents of Canada

Incidence rates for colorectal cancer, by sex,
Canada and British Columbia, 1976-2002 (projected)[1]



Source: Statistics Canada, Canadian Cancer Registry, and Demography Division (census population estimates); ISQ

Notes:
1. Year 1998-2002 data are estimates/forecasts, produced by Health Canada through extrapolation of cancer incidence data from the National Cancer Incidence Reporting System (NCIRS, 1969-91) and the Canadian Cancer Registry.
2. Numbers on chart indicate most recent year available data.
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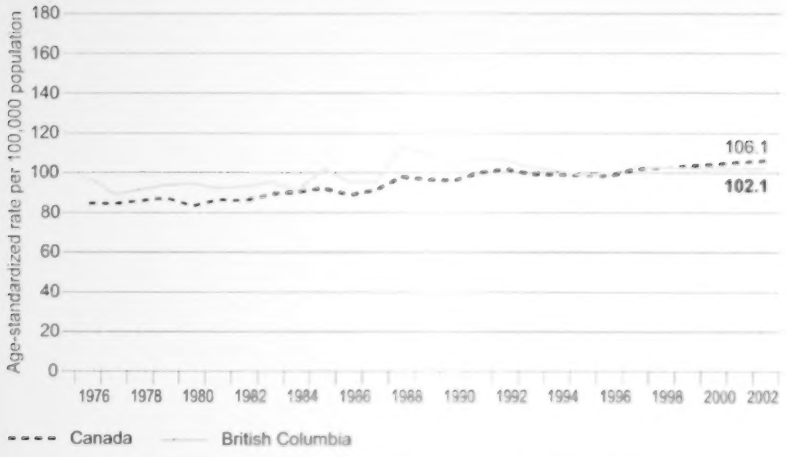
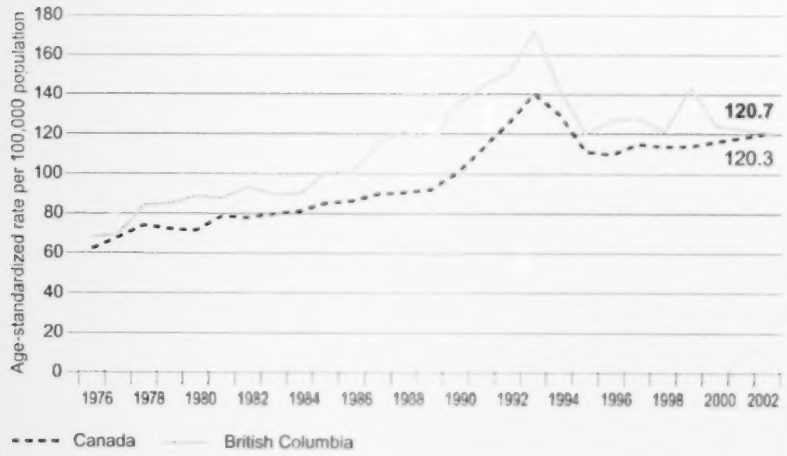
4. Cancer incidence rates are age-standardized using the direct method and the 1991 Canadian Census population structure. The use of a standard population results in more meaningful incidence rate comparisons, because it adjusts for variations in population age distributions over time and across geographic areas.
5. Exclusions: Non-residents of Canada

Incidence rates for female breast cancer,
Canada and British Columbia, 1976-2002 (projected)[1]



Source: Statistics Canada, Canadian Cancer Registry, and Demography Division (census population estimates); ISQ
Notes:
1. Year 1998-2002 data are estimates/forecasts, produced by Health Canada through extrapolation of cancer incidence data from the National Cancer Incidence Reporting System (NCIRS, 1969-91) and the Canadian Cancer Registry.
2. Numbers on chart indicate most recent year available data.
3. Disease is classified in relation to World Health Organization, International Classification of Diseases, 9th Revision (ICD-9).
4. Cancer incidence rates are age-standardized using the direct method and the 1991 Canadian Census population structure. The use of a standard population results in more meaningful incidence rate comparisons, because it adjusts for variations in population age distributions over time and across geographic areas.
5. Exclusions: Non-residents of Canada.

Incidence rates for prostate cancer,
Canada and British Columbia, 1976-2002 (projected)[1]



Source: Statistics Canada, Canadian Cancer Registry, and Demography Division (census population estimates); ISQ
Notes:
1. Year 1998-2002 data are estimates/forecasts, produced by Health Canada through extrapolation of cancer incidence data from the National Cancer Incidence Reporting System (NCIRS, 1969-91) and the Canadian Cancer Registry.
2. Numbers on chart indicate most recent year available data.
3. Disease is classified in relation to World Health Organization, International Classification of Diseases, 9th Revision (ICD-9).
4. Cancer incidence rates are age-standardized using the direct method and the 1991 Canadian Census population structure. The use of a standard population results in more meaningful incidence rate comparisons, because it adjusts for variations in population age distributions over time and across geographic areas.
5. Exclusions: Non-residents of Canada.

are 73.9 in Canada and 59.3 in British Columbia. The 2002 female rates are 47.3 in Canada and 45.5 in British Columbia.

The rates for female colorectal cancer have decreased slightly since 1976 for both Canada and British Columbia. The rate for male colorectal cancer also decreased from 1976 to 2002 in British Columbia while the Canada rate increased. The 2002 rates are 59.0 in Canada and 54.2 in British Columbia for males. The 2002 rates for females are 39.2 in Canada and 35.1 in British Columbia.

The female breast cancer incidence rate has increased from 84.6 in 1976 to 106.1 in 2002 in Canada. The increase has been less dramatic in British Columbia (97.6 in 1976; 102.1 in 2002).

The prostate cancer incidence rate has increased in Canada from 62.1 in 1976 to 120.3 in 2002. In British Columbia the rate increased from 68.6 in 1976 to 120.7 in 2002.

7b. Potential Years of Life Lost due to Lung, Prostate, Breast, and Colorectal Cancer, AMI, Stroke, Suicide and Unintentional Injury

Potential years of life lost (PYLL) due to lung, prostate, breast and colorectal cancer, AMI, stroke, suicide and unintentional injury is defined as the number of years of life "lost" when a person dies "prematurely" from any of these causes – defined as dying before age 75. A person dying at age 25, for example, has lost 50 potential years of life.

PYLLs can also be estimated for a specific cause, in which case the indicator measures the number of years of life "lost" when a person dies before age 75 due to a cause like injury, cancer, AMI, or stroke.

The most widely used indicator based on mortality rates is life expectancy. It measures average expectation of life, and

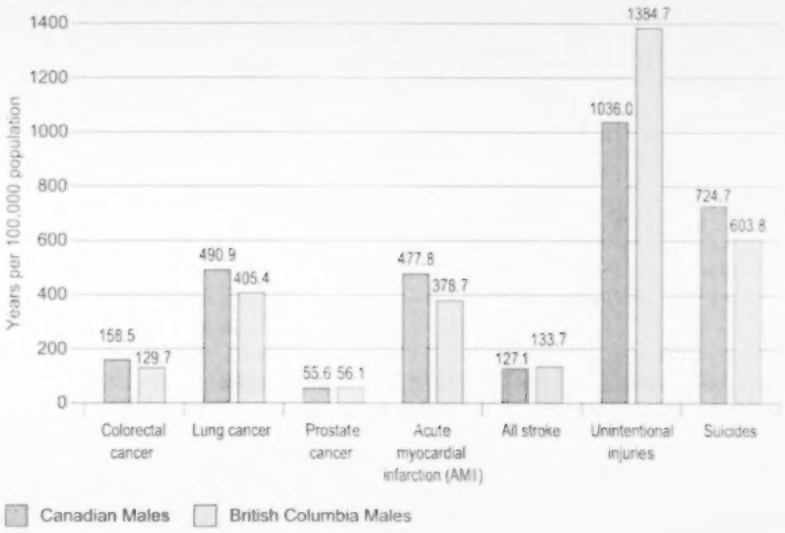
therefore reflects both changing lengths of life for the very old, and changes in mortality rates for the non-elderly. PYLL is a complementary indicator focusing on mortality among the non-elderly. It reflects the level of success in preventing premature (and therefore presumably preventable or postponable) loss of life, with its consequent loss of social and economic productivity. It is an overall indicator of population health and well being, and the effectiveness of existing preventive programs.

It should be noted that, at old ages, co-morbidity becomes very frequent and death is often the result of a complex process. This can make PYLL more meaningful for diseases that can be identified as the sole cause of death and for those that kill at an early age. Unfortunately, PYLL is only based on single causes of death statistics.

Note: In the 1970s and 1980s, Canada PYLL was based on age<70. Other cutoffs have been used by different countries and at different points in time. Any work done now on PYLL based on age<75 will differ from published data on PYLL from most previous Canadian sources and should not be compared with them. The choice of age 70 or 75 is arbitrary, and does not greatly affect time trends or inter-provincial comparisons.

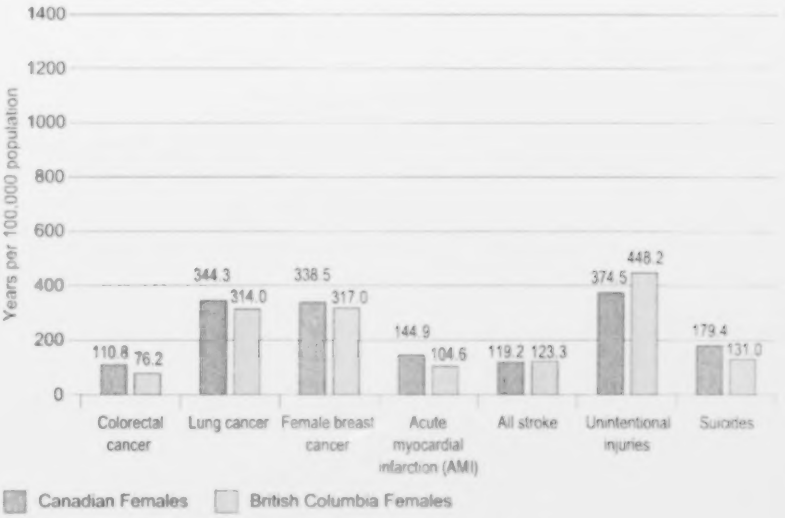
Unintentional injury accounts for by far the greatest PYLL of the categories reported. In 1999, the PYLL for unintentional injuries for both genders combined was 706.6 years in Canada and 919.6 in British Columbia. In British Columbia PYLL due to unintentional injuries was 1,384.7 for males and 448.2 for females. The next highest category is suicides (453.2 in Canada and 369.0 in British Columbia for both genders combined), followed by lung cancer (417.9 in Canada and 360.0 in British Columbia for both genders combined).

Potential years of life lost due to lung, prostate and colorectal cancer, AMI, stroke, suicide and unintentional injury, males aged 0 to 74
Canada and British Columbia, 1999



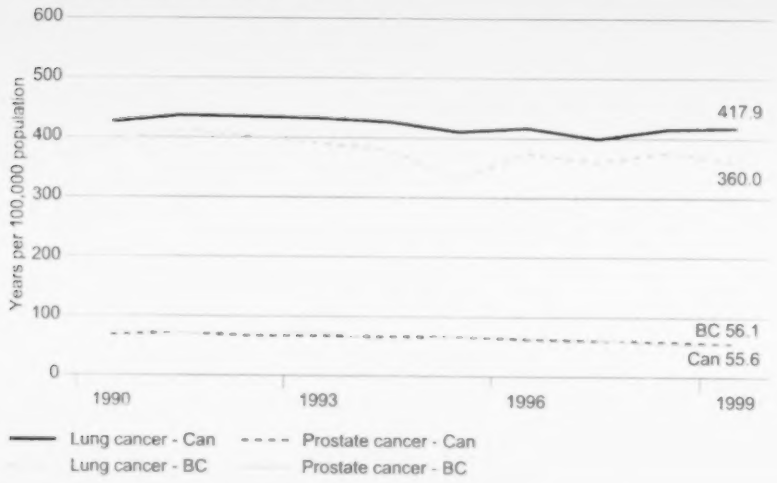
Source: Statistics Canada, Vital Statistics, Demography Division (population estimates); ISQ
Notes:
Non-residents of Canada are excluded from the deaths and population estimates

Potential years of life lost due to lung, breast and colorectal cancer, AMI, stroke, suicide and unintentional injury, females aged 0 to 74
Canada and British Columbia, 1999



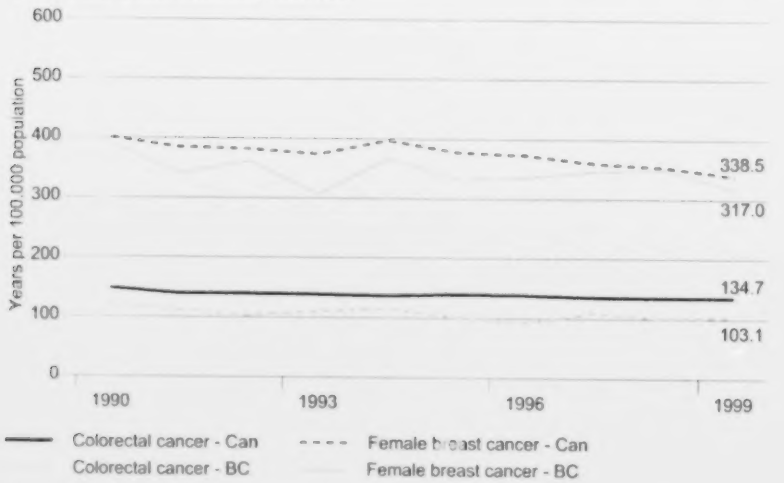
Source: Statistics Canada, Vital Statistics, Demography Division (population estimates); ISQ
Notes:
Non-residents of Canada are excluded from the deaths and population estimates

Potential years of life lost due to lung and prostate cancer, population aged 0-74,
Canada and British Columbia, 1990-1999



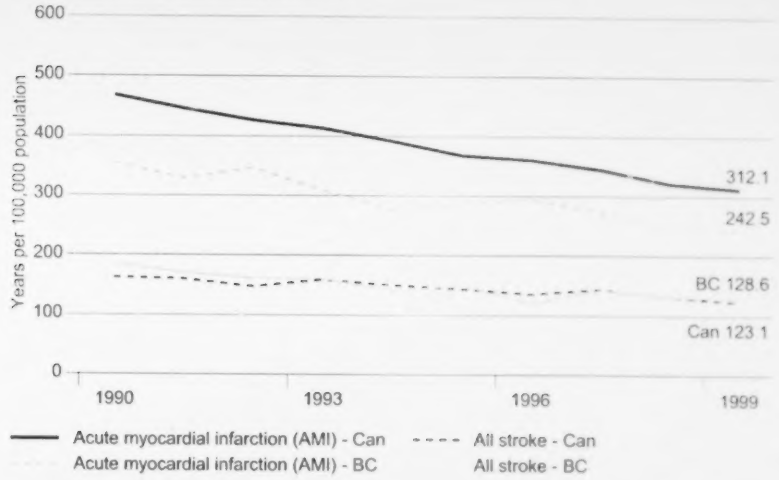
Source: Statistics Canada, Vital Statistics, Demography Division (population estimates); ISQ
Notes:
1. Non-residents of Canada are excluded from the deaths and population estimates.
2. Numbers indicate most recent year data available.

Potential years of life lost due to colorectal and female breast cancers, population aged 0 -74,
Canada and British Columbia, 1990-1999



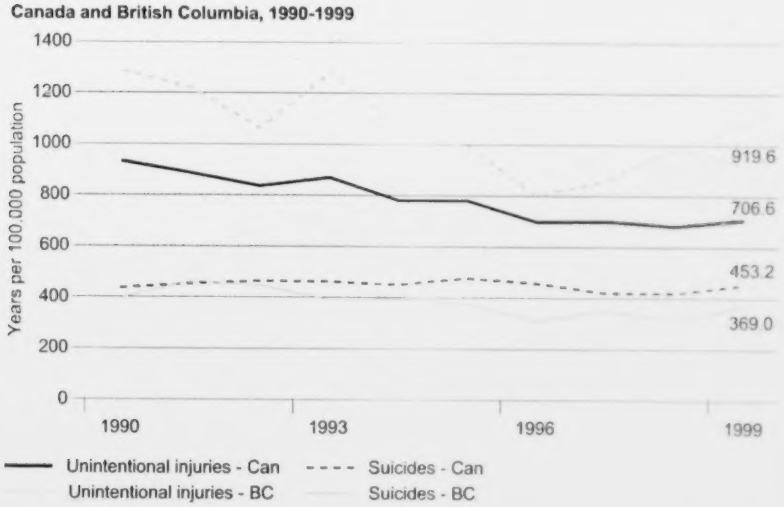
Source: Statistics Canada, Vital Statistics, Demography Division (population estimates); ISQ
Notes:
1. Non-residents of Canada are excluded from the deaths and population estimates.
2. Numbers indicate most recent year data available.

Potential years of life lost due to acute myocardial infarction (AMI) and stroke, population aged 0-74,
Canada and British Columbia, 1990-1999



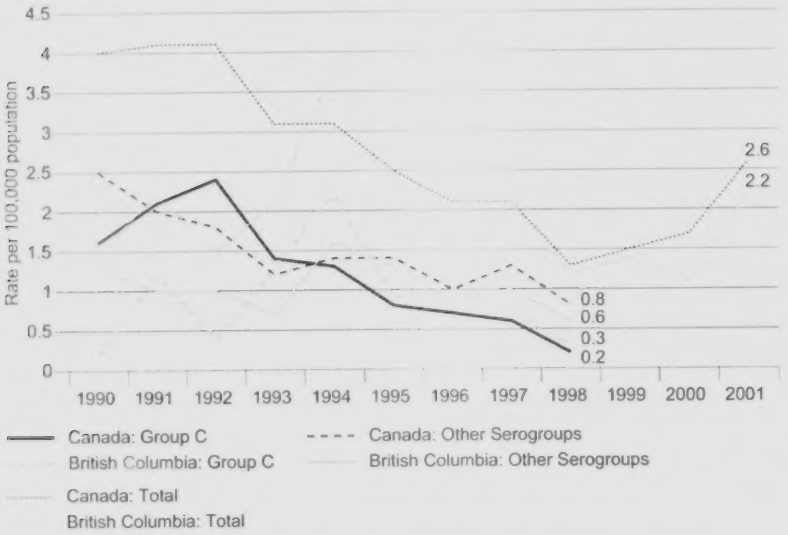
Source: Statistics Canada, Vital Statistics, Demography Division (population estimates); ISQ
Notes:
1. Non-residents of Canada are excluded from the deaths and population estimates.
2. Numbers indicate most recent year data available.

Potential years of life lost due to suicide and unintentional injuries, population aged 0-74,
Canada and British Columbia, 1990-1999



Source: Statistics Canada, Vital Statistics, Demography Division (population estimates); ISQ
Notes:
1. Non-residents of Canada are excluded from the deaths and population estimates.
2. Numbers indicate most recent year data available.

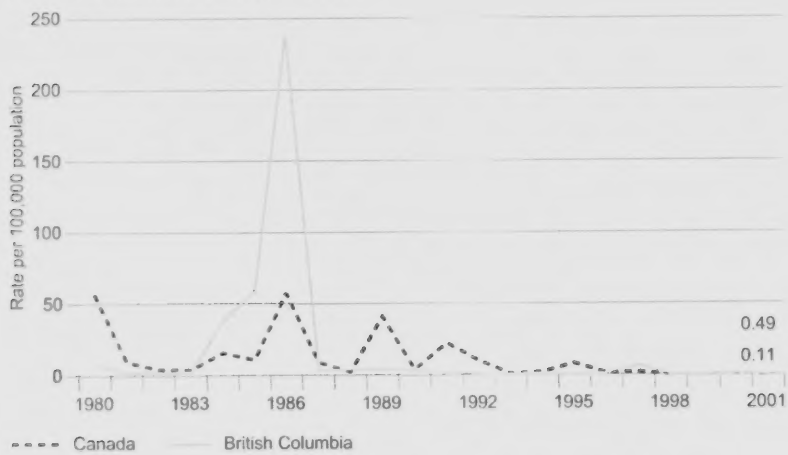
Invasive meningococcal disease incidence rates, persons <20 Years, by serogroup,
Canada and British Columbia, 1990-2001*



Source: Provincial and Territorial Ministries of Health, Laboratories across Canada, and National Microbiology Laboratory, Winnipeg.

Notes:
1. * Data for 2000 and 2001 are provisional; validation and verification in progress.
2. Breakdown by serogroup 1999-2001 unavailable at this time.
3. Data are based on Health Canada's Enhanced Surveillance System and only include cases for which laboratory data are available.
4. Numbers on chart indicate most recent year data available.

Measles incidence rates,
Canada and British Columbia, 1980-2001*



Source of Data: Provinces/Territories, NDSS Data base (1980-1997) & Enhanced Surveillance System 1998 to 2001

Notes:
1. Since 1998, all measles cases are imported or import-related.
2. Data for 2001 are provisional.
3. Numbers on chart indicate most recent year data available.

7c. Incidence rates of vaccine-preventable diseases

Jurisdictions are reporting in 2002 on the incidence rates of three "sentinel" conditions which are reportable to Health Canada: invasive meningococcal disease; measles; and haemophilus influenzae b (invasive) disease.

7c(i). Invasive meningococcal disease incidence rate

The incidence rate of invasive meningococcal disease is defined as the rate of new cases reported by year, age and serogroup per 100,000 population.

A new generation of very effective protein conjugate vaccines is now available against Group C disease which can be given to infants as young as two months of age. The National Advisory Committee on Immunization (NACI) recommends three doses of this vaccine at two, four and six months of age for routine immunization. Other meningococcal conjugate vaccines, which are anticipated to confer long-term immunity against multiple serogroups, are under development. Epidemiological data on invasive meningococcal disease will enable evidence-based program planning and evaluation. There is a high level of public interest in this disease, as well as strong potential for significant reduction in incidence over time. Most cases of this disease occur in the 0-19 age group, and immunization programs generally focus on this group.

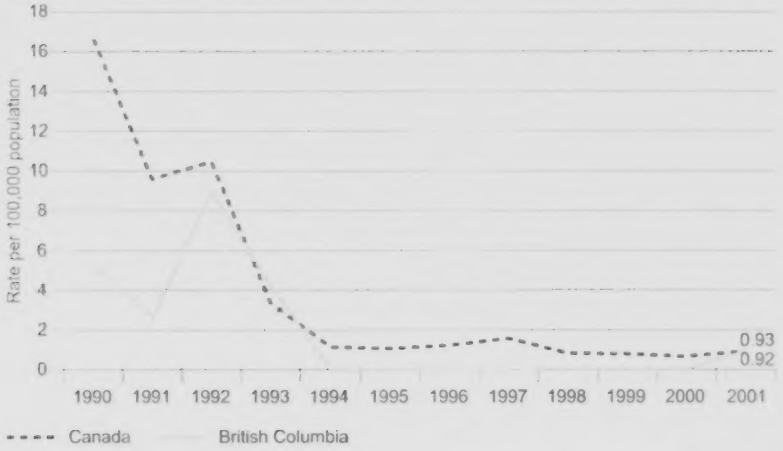
There was an increased rate of meningococcal disease both in BC and in Canada in 2001 compared to 2000 for all groups combined. Data are not yet available to break down these cases by serogroup.

7c(ii). Measles incidence rate

The incidence rate for measles is defined as the number of new cases of "red" measles per 100,000 population reported by year.

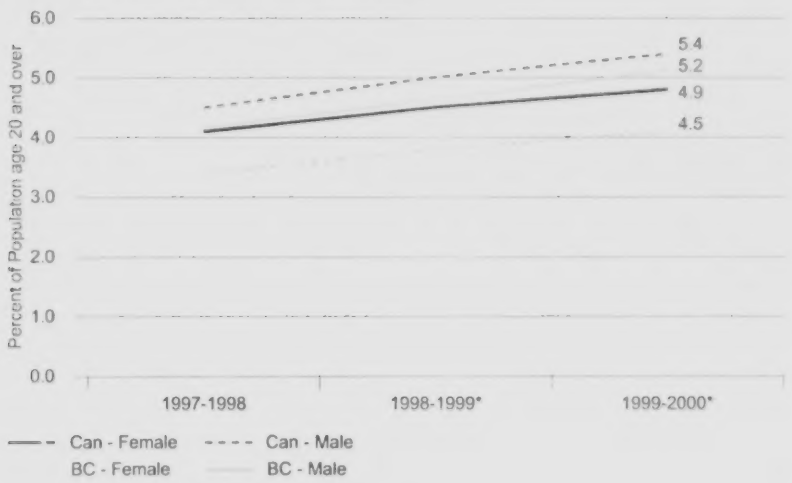
The Pan-American Health Organization adopted the goal of measles elimination by

Haemophilus influenza b (invasive) (Hib) disease incidence rate in children <5 years,
Canada and British Columbia, 1990-2001*



Source of Data: Provinces/Territorial Ministries of Health, NDSS Data base
Notes:
1. * Data for 2000, 2001 are provisional.
3. Numbers on chart indicate most recent year data available.

Prevalence of diabetes (provisional estimates), by sex, age 20 and over,
Canada and British Columbia, 1997/98 - 1999/2000



Source: National Diabetes Surveillance System (NDSS): July 31,2002
*Data from 1998/99 and 1999/00 are preliminary as there is not yet a complete 730 days of follow-up data available
Notes:
1. Excludes persons under 20.
2. NDSS is a new system and, with the first years of data, rising prevalence may in part be due to the incomplete detection of all existing cases when only two or three years of data are available; it is expected that up to five years of complete data will be needed to ensure that all those with diabetes prior to system implementation have been appropriately classified.
3. All prevalence estimates based on this early NDSS data are considered to be provisional.

2000; it is also the only national goal and objective that has been adopted by all provinces and territories. Two doses of measles vaccine are required for complete protection; the first dose is given at 12 months and the second dose prior to school entry, at either 18 months or 4-6 years of age. In the absence of global eradication, maintaining measles elimination requires ongoing, enhanced surveillance and continued high immunization coverage rates.

Prior to the introduction of two-dose vaccination, there continued to be sporadic outbreaks of measles across Canada. The BC outbreak in 1986 is documented on the graph. Since the introduction of the two-dose vaccine, the number of reported cases has fallen dramatically. In 1986 there were 7,148 reported cases in British Columbia and 14,941 reported cases in Canada. In 2001, there were 20 reported cases of measles in BC and 34 in Canada.

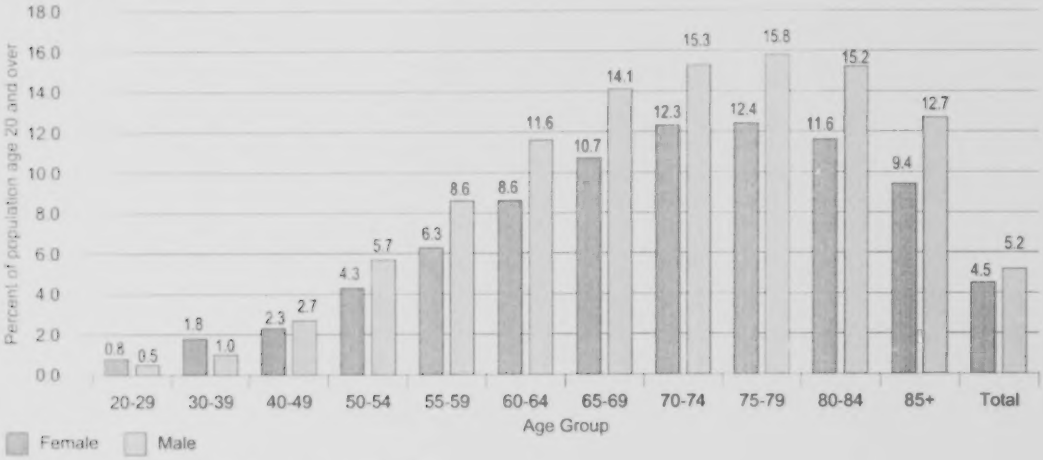
7c(iii) Haemophilus influenzae b (invasive) (Hib) disease incidence rate in children

The rate of Haemophilis influenzae b (invasive) in children is defined as the rate of new cases reported by year in children under 5.

Hib was the most common cause of bacterial meningitis and a leading cause of other serious invasive infections in children prior to the introduction of Hib vaccines. Vaccine preventable cases are now rare. Four doses of the vaccine are given in combination with diphtheria, pertussis, tetanus, and polio before the age of 2 years. However, other vaccines which could potentially interfere with the immunogenicity of Hib vaccine are being introduced in some jurisdictions (e.g. conjugate pneumococcal and meningococcal vaccines, and hepatitis B).

The rates per 100,000 population for Hib disease in children under five years of age has fallen from 16.62 in Canada and 5.35 in British Columbia in 1990 to .92 in

Prevalence of diabetes (provisional estimates), persons 20 and over by age and sex, British Columbia, 2000



Source: National Diabetes Surveillance System (NDSS), July 31,2002.
Notes:
1. Excludes persons under 20.
2. NDSS is a new system and, with the first years of data, rising prevalence may in part be due to the incomplete detection of all existing cases when only two or t of data are available; it is expected that up to five years of complete data will be needed to ensure that all those with diabetes prior to system implementation ha appropriately classified.
3. All prevalence estimates based on this early NDSS data are considered to be provisional. Data on this chart are preliminary as there is not yet a complete 730 d follow-up data available.

Canada and .93 in British Columbia in 2001. There have been only two reported cases of Haemophilus influenzae B reported in BC since 1993, both in 2001.

7d. Prevalence of diabetes

The prevalence for diabetes is defined as the proportion of individuals in the population aged 20 and over with the disease at a given time.

The period prevalence of diabetes gives an idea of the importance or burden of this disease at a given time and is widely used in public health monitoring and planning. Prevalence estimates are based on data from the National Diabetes Surveillance System (NDSS), which is currently in the early stages of implementation. The NDSS defines cases of diabetes based on hospital discharge and physician billing data. All prevalence estimates based on this early NDSS data are considered to be provisional.

Total prevalence estimates are age- and sex-standardized to the 1991 Canadian census. Due to the provisional nature of this initial data on diabetes, however, comparisons between jurisdictions and over time should not be made. Any comparisons to the Canadian average should be made with caution.

In British Columbia the prevalence of diabetes increases in the older age groups as could be expected with a chronic condition. The highest prevalence is in the 75 to 79 year age group. The prevalence for males is greater than prevalence for females in all age groups except under age 40.

Indicators in this category reflect several aspects of health service quality (e.g., appropriateness, effectiveness, accessibility, acceptability). The indicators do not address all dimensions of service quality (e.g., efficiency, safety), primarily due to the limitations of existing data.

8. Waiting Times for Key Diagnostic and Treatment Services

Provincial/territorial health systems/health authorities have a role in achieving reasonable wait times for services by ensuring effective management of wait lists and operating room schedules, effective bed utilization strategies, and appropriate budget allocation for prevention, treatment and follow-up care.

Administrative data. Systematic collection and comparison of wait time data is complex. Historically, different groups have defined and monitored wait times in different ways. For example, some calculate wait times from when a person first visits a family doctor. Others start the clock when the patient is assessed by a specialist or when test results confirm the need for further treatment or from some other point. There are advantages and disadvantages to each approach. Nonetheless, such differences have to be reconciled if meaningful comparisons between jurisdictions are to be made.

For this initiative, wait times for coronary artery bypass graft (CABG) surgery are measured by tracking the number of days waited between cardiac catheterization and CABG surgery, for patients who received surgery in a given period. Based on the data currently available across the country, this measure was deemed by experts to be the most appropriate for cross-jurisdiction comparisons at this time. This is an important, but certainly not the only, wait that a person might experience between developments to resolution of cardiac symptoms. As systems for monitoring wait times are further developed, it is expected that more comprehensive reporting on waiting times will be possible.

Survey data. In addition to administrative data on wait times, some survey-based information on wait times will also be reported by several jurisdictions. This information was collected by Statistics Canada, through a supplement to the Canadian Community Health Survey.

8a. Cardiac Surgery

The Wait Time is the number of days waited between cardiac catheterization and CABG surgery for adults (aged 20 years and over) who received CABG surgery in the period in question. For this report, jurisdictions such as British Columbia which have cardiac surgery wait list registries have been asked to report on three aspects of waiting times: the number of months that would be required to clear the waiting list for each reporting period, the median wait time, and the distribution of wait times.

The estimated number of months to clear the current wait list is determined by dividing the total number of adults waiting for CABG surgery (patients who have received cardiac catheterization and been designated by a physician as needing CABG surgery, but have not yet received the surgery) on the last day of the reporting period, by the average number of CABG surgeries completed per month within the same period.

The median wait time is the 50th percentile of the distribution of wait times: half the patients wait less and half wait longer than the median number of days.

The distribution of wait times is percent of adults (aged 20 and older) who received CABG surgery in the period in question and who waited 14 days or less, 15-42 days, 43-180 days, or greater than 180 days, between cardiac catheterization and CABG surgery.

Median wait times for CABG surgery in British Columbia, 2001/02

	Median Wait in Days
April – June 2001	18
July – September 2001	33
October – December 2001	15
January – March 2002	25

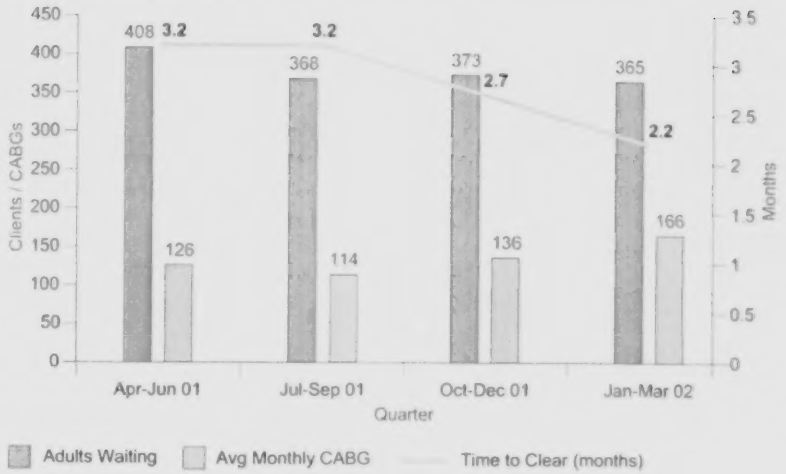
Source: British Columbia Cardiac Registry
Notes:
1. Only "isolated" CABG cases, uncomplicated by any other procedure, are included.
2. All emergent and non-emergent CABG cases are included.
3. Data include surgery performed in BC on residents of BC.
4. Individuals were not counted in the numerator if a decision was made, either by the individual or his/her physician, not to proceed with surgery or to delay surgery for medical or other reasons.

The average number of surgeries completed increased from 126 in April-June 2001 to 166 in January-March 2002. The increased volume of cardiac surgeries meant that the months to clear the wait list decreased from 3.2 months to 2.2 months and the number of adults waiting decreased from 408 to 365. In January-March 2002, 42 percent of the patients receiving CABG had waited less than 14 days and 13 percent waited fifteen to forty-two days. The median wait for that quarter was 25 days.

8b. Hip and Knee Replacement Surgery

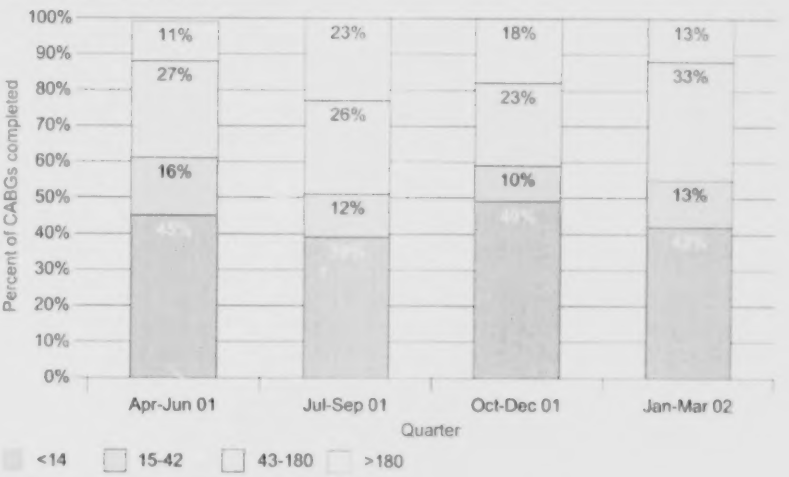
We are reporting on three indicators related to wait times for total hip replacement surgery and total knee replacement surgery: the number of months to clear the current wait list at the end of each time period, the median wait in weeks for adults who had surgery during that period, and the distribution of waiting times. The wait time for total hip replacement surgery or total knee replacement surgery is the number of

Estimated number of months to clear current wait list for CABG, British Columbia, 2001/02



Source: British Columbia Cardiac Registry
Notes:
1. Only "isolated" CABG cases, uncomplicated by any other procedure, are included.
2. All emergent and non-emergent CABG cases are included.
3. Data include surgery performed in BC on residents of BC.
4. Individuals were not counted in the numerator if a decision was made, either by the individual or his/her physician, not to proceed with surgery or to delay surgery for medical or other reasons.

Distribution of CABG wait times (days), British Columbia, 2001/02



Source: British Columbia Cardiac Registry
Notes:
1. Only "isolated" CABG cases, uncomplicated by any other procedure, are included.
2. All emergent and non-emergent CABG cases are included.
3. Data include surgery performed in BC on residents of BC.
4. Individuals were not counted in the numerator if a decision was made, either by the individual or his/her physician, not to proceed with surgery or to delay surgery for medical or other reasons.

weeks waited between the date the surgeon made a decision, with the patient's agreement, that surgery was required and the date that surgery was performed for adults (aged 18 and over) who received surgery in the period in question.

Months to clear the current wait list is calculated based on the number of patients waiting on the last day of the reporting period, divided by the average number of surgeries of that type performed during each month of the same period.

The median wait time is the 50th percentile of the distribution of wait times: half the patients who had surgery in that period waited less and half waited longer than the median number of weeks.

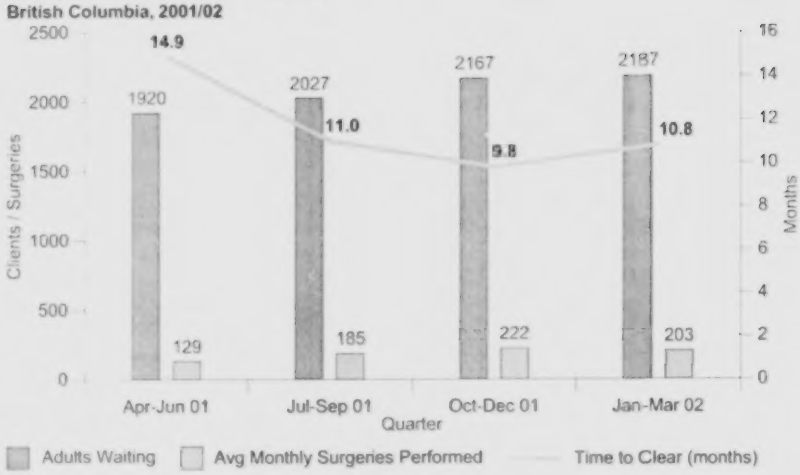
The distribution of wait times for hip and knee replacement surgery is the percent of adults (aged 18 and older) who received total hip or total knee replacement surgery in the period in question who waited less than three months, three-six months, 7-12 months, 13-18 months, or more than 18 months from when the surgeon made a decision, with the patient's agreement, that surgery was required to when the surgery was performed. The date on the surgery booking form is used to identify the date on which the decision to proceed with surgery was made.

Median wait times for total hip replacement surgery in British Columbia, 2001/02

	Median Wait in Weeks
April – June 2001	16.6
July – September 2001	21.3
October – December 2001	20.7
January – March 2002	18.9

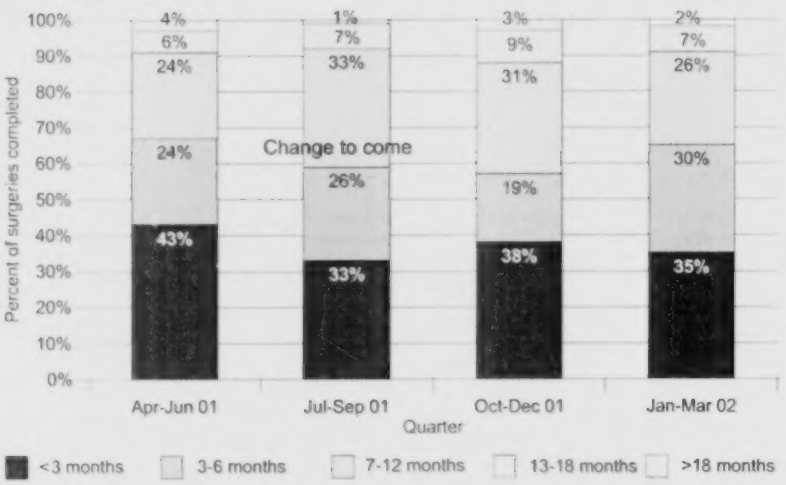
Source: British Columbia Surgical Waitlist Registry
Notes:
1. Includes revisions and partial replacements as well as new total joint replacement procedures.
2. All elective and non-elective cases are included.
3. Data include surgery performed in BC on residents of BC, but do not include residents of BC having surgery in other jurisdictions.
4. Individuals were not counted in the numerator if a decision was made, either by the individual or his/her physician, not to proceed with surgery or to delay surgery for medical or other reasons.

Estimated number of months to clear current wait list for total hip replacement surgery,
British Columbia, 2001/02



Source: BC Surgical Waitlist Registry
Notes:
1. Includes revisions and partial replacements as well as new total joint replacement procedures.
2. All elective and non-elective cases are included.
3. Data include surgery performed in BC on residents of BC, but do not include residents of BC having surgery in other jurisdictions.
4. Individuals were not counted in the numerator if a decision was made, either by the individual or his/her physician, not to proceed with surgery or to delay surgery for medical or other reasons.

Distribution of wait times (months) for total hip replacement surgery,
British Columbia, 2001/02



Source: BC Surgical Waitlist Registry
Notes:
1. Includes revisions and partial replacements as well as new total joint replacement procedures.
2. All elective and non-elective cases are included.
3. Data include surgery performed in BC on residents of BC, but do not include residents of BC having surgery in other jurisdictions.
4. Individuals were not counted in the numerator if a decision was made, either by the individual or his/her physician, not to proceed with surgery or to delay surgery for medical or other reasons.

The average number of total hip replacement surgeries performed per month was 129 in April to June 2001. This had increased to 203 in January to March 2002. The number of adults waiting for the surgery increased from 1,920 to 2,187. The estimated months to clear the wait list dropped from 14.9 to 10.8. In the January to March 2002 period 35 percent of those receiving hip replacement surgery had waited less than three months; 30 percent had waited three to six months. The median wait in that quarter was 18.9 weeks.

Median wait times for total knee replacement surgery in British Columbia, 2001/02

	Median Wait in Weeks
April – June 2001	20.4
July – September 2001	28.4
October – December 2001	28.2
January – March 2002	23.0

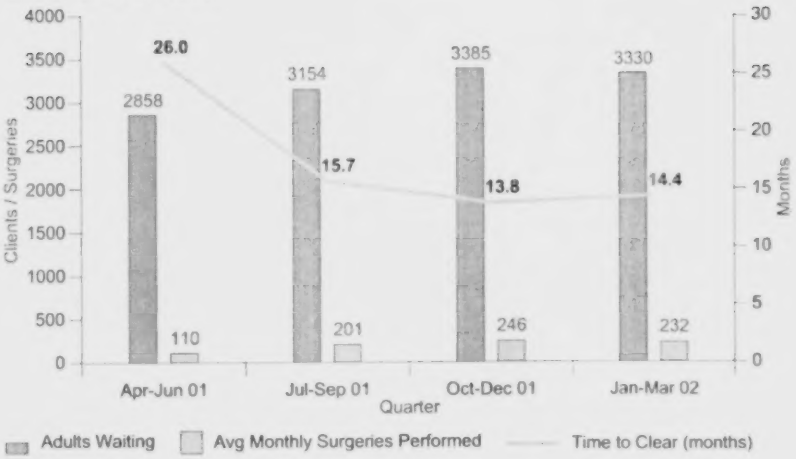
Source: British Columbia Surgical Waitlist Registry
Notes:
1. Includes revisions and partial replacements as well as new total joint replacement procedures.
2. All elective and non-elective cases are included.
3. Data include surgery performed in BC on residents of BC, but do not include residents of BC having surgery in other jurisdictions.
4. Individuals were not counted in the numerator if a decision was made, either by the individual or his/her physician, not to proceed with surgery or to delay surgery for medical or other reasons.

The number of total knee replacement surgeries performed in British Columbia increased from 110 in April – June 2001 to 232 in January – March 2002. The total number of adults waiting increased from 2,858 to 3,330. The estimated time to clear the wait list dropped from 26.0 months to 14.4 months. From January to March 2002, 33 percent of those receiving total knee replacement surgery had waited less than three months; 21 percent had waited three to six months. The median wait time was 23.0 weeks.

8c. Radiation Therapy for Breast and Prostate Cancer

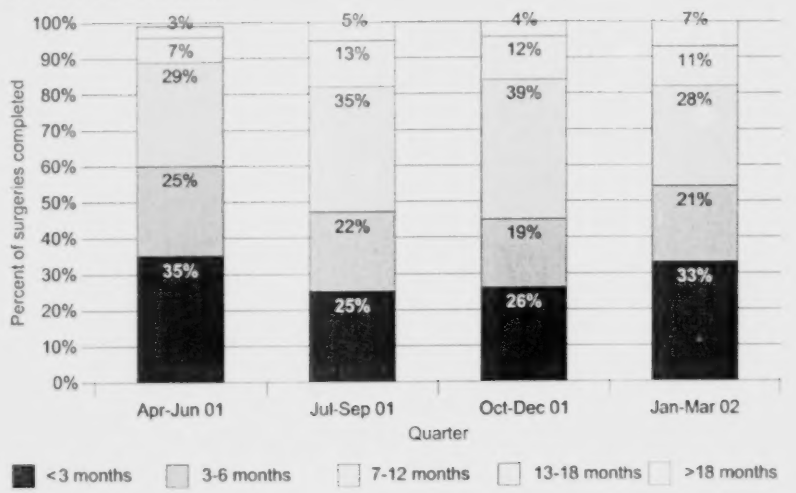
The wait time is the number of weeks from the time that the oncologist made a decision, in consultation with the patient,

Estimated number of months to clear current wait list for total knee replacement surgery,
British Columbia, 2001/02



Source: BC Surgical Waitlist Registry
Notes:
1. Includes revisions and partial replacements as well as new total joint replacement procedures.
2. All elective and non-elective cases are included.
3. Data include surgery performed in BC on residents of BC, but do not include residents of BC having surgery in other jurisdictions.
4. Individuals were not counted in the numerator if a decision was made, either by the individual or his/her physician, not to proceed with surgery or to delay surgery for medical or other reasons.

Distribution of wait times (months) for total knee replacement surgery,
British Columbia, 2001/02



Source: BC Surgical Waitlist Registry
Notes:
1. Includes revisions and partial replacements as well as new total joint replacement procedures.
2. All elective and non-elective cases are included.
3. Data include surgery performed in BC on residents of BC, but do not include residents of BC having surgery in other jurisdictions.
4. Individuals were not counted in the numerator if a decision was made, either by the individual or his/her physician, not to proceed with surgery or to delay surgery for medical or other reasons.

that the patient was Ready-to-Treat and the date that radiation therapy commenced, for the period in question. For this indicator Ready-to-Treat is defined as the date when, in the opinion of a radiation oncologist, a patient is recommended for, and is medically fit to proceed with, the radiation treatment process. The radiation treatment process involves all or any of the following steps: simulation, planning, dosimetry, treatment.

Estimated weeks to clear the current wait list is calculated using the number of patients waiting at the end of each reporting period, divided by the average number of patients starting treatment each week during the same period.

The median wait time is the 50th percentile of the distribution of wait times: half the patients wait less and half wait longer than the median number of weeks. British Columbia is unable to report on median waiting times for radiation therapy for breast and prostate cancer for 2001/02, as median waiting time by tumor site was not collected during that period.

Estimated weeks to clear current wait list for radiation therapy for breast and prostate cancer in British Columbia, 2001/02

	Breast Cancer	Prostate Cancer
April – June 2001	3.3	1.8
July – September 2001	2.1	1.8
October – December 2001	3.1	2.4
January – March 2002	2.5	2.3

Source: BC Cancer Agency, Provincial Radiation Therapy Program

The estimated number of weeks to clear the current wait list for radiation therapy for breast cancer declined from 3.3 weeks in the first quarter of 2001/02 to 2.5 weeks in the last quarter. The estimated number of weeks to clear the current wait list for radiation therapy for prostate cancer increased from 1.8 weeks in the first quarter 2001/02 to 2.3 weeks in the last quarter.

8d. Reported Wait Times for Specialist Physician Visits, Certain Diagnostic Tests and Non-emergency Surgery

Note: specialist physician visits include visits for a new illness or condition only; diagnostic tests include non-emergency MRIs, CT Scans and angiographies only; surgery includes only non-emergency cases.

Information for this section is drawn from Statistic Canada's Health Services Access Survey and reflects survey respondents' recollection of their experiences in the previous 12 months. As with all survey information, the survey data is used to calculate estimates for the general population. The 95 percent Confidence Interval indicates how closely the value estimates the actual value in the population. The value is 95 percent certain to be in the range of the error bars. A difference between British Columbia and Canada is statistically different only if the value and error bars do not overlap.

Wait time refers to the length of time, in weeks, between the patient being referred for a specialized service and receiving the service, during the 12 months prior to the survey.

The median wait time is the 50th percentile of the distribution of wait times: half the patients wait less and half wait longer than the median number of weeks. Patients who have not yet received the service are excluded from the indicator calculation.

The survey asks about any type of non-emergency surgery, and visits to any medical specialists. Waiting times will vary considerably for different types of surgery, different degrees of urgency, and different physician specialties and specialists, and these differences cannot be detected by population sample surveys. British Columbia has comprehensive surgical wait list information by surgical specialty available on-line at www.healthservices.gov.bc.ca/waitlist

The median reported wait for specialist physician visits for a new illness or condition in British Columbia was 4.0 weeks. For non-emergency surgery, the median reported wait was 5.0 weeks, and for the three identified diagnostic tests, 3.0 weeks. Reported median waiting times for both non-emergency surgeries and selected diagnostic tests in this survey should be used with caution, as the variability of the data is quite high.

The distribution of waiting times reported by British Columbia residents is very similar to the national distribution.

Of patients in British Columbia who reported that they had needed to see, and had subsequently seen, a medical specialist for a new illness or condition in the last 12 months, 49.6 percent reported that they had waited less than one month, and 11.5 percent that they had waited more than three months.

Median reported wait times in weeks for certain specialized services, British Columbia and Canada, 2001

	British Columbia			Canada		
		95% C.I.			95% C.I.	
		low	high		low	high
Specialist Physicians	4.0	3.0	5.0	4.3	3.8	4.7
Diagnostic Services	3.0 (E)	2.0	4.0	3.0 (E)	1.7	4.3
Non-emergency Surgery	5.0 (E)	2.9	7.1	4.3	2.9	5.7

Source: Canadian Community Health Survey – Cycle 1.1 – 2000/2001;
Health Services Access Survey (supplement to CCHS) – Nov – Dec 2001.

Notes:
- Excludes persons living on First Nations Reserves and on Crown lands, residents of institutions, full-time members of Canadian Armed Forces and residents of certain remote regions. Non-respondents were excluded, as were persons less than 15 years of age.
- "E" Use with caution: coefficient of variation between 16.6% and 33.3%
- Specialist Physicians visits include visits for a new illness or condition only; diagnostic tests include non-emergency MRIs, CT Scans and angiographies only; surgery includes only non-emergency cases.

Of patients in British Columbia who reported that they had required, and had subsequently received, one of the selected diagnostic tests (non-emergency MRIs, CAT Scans, or angiographies only), 57.9 percent reported that they had waited less than one month, and 11.3 percent reported that they had waited more than three months.

Reported waiting times for non-emergency surgery were somewhat higher than for the other two specialized health services in the survey. Of patients in British Columbia who reported that they had needed, and had subsequently received, non-emergency surgery, 41.7 percent said they had waited less than one month, and 24.1 percent that they had waited for longer than three months.

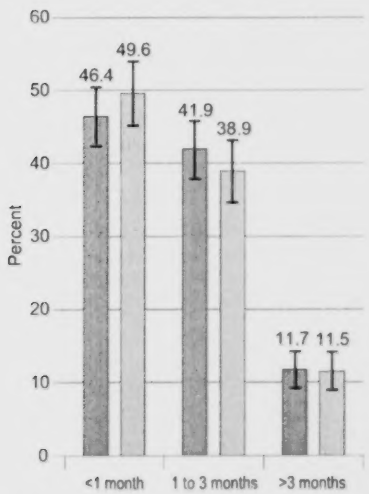
9. Patient Satisfaction

Patient satisfaction is defined as the percentage of the adult population who rate themselves as either very satisfied or somewhat satisfied with the way the following services were provided: overall health care services received, services received in a hospital, services received from a family doctor or other physician, and community-based services received.

These indicators apply to individuals who have received health care services over a 12-month reference period. The individual's assessment of the quality of care received and the satisfaction with the services are measured. The indicators apply to individuals 15 years old and older living in private households.

BC is above the national averages for public satisfaction in community-based

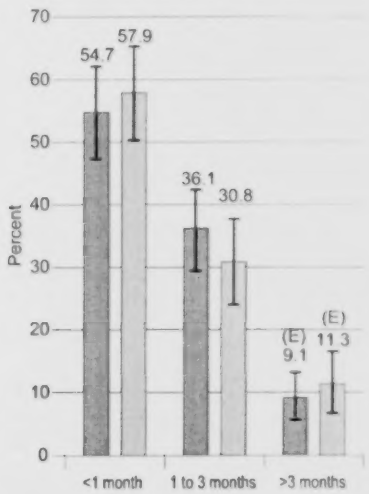
Distribution of reported wait times for specialist physician visits, Canada and British Columbia, 2001



Source: Canadian Community Health Survey — Cycle 1.1 — 2000/2001; Health Services Access Survey (supplement to CCHS) — Nov-Dec 2001

Notes:
1. Population who visited a specialist physician for a new illness or condition in the last 12 months.
2. Excludes persons living on First Nation Reserves and on Crown lands, residents of institutions, full-time members of Canadian Armed Forces and residents of certain remote regions. Persons less than 15 year of age and non-respondents were excluded.
3. Range lines at the end of bars indicate the 95% confidence interval (CI), which illustrate the degree of variability associated with a rate. Wide confidence intervals indicate high variability, thus, these rates should be interpreted and compared with due caution.

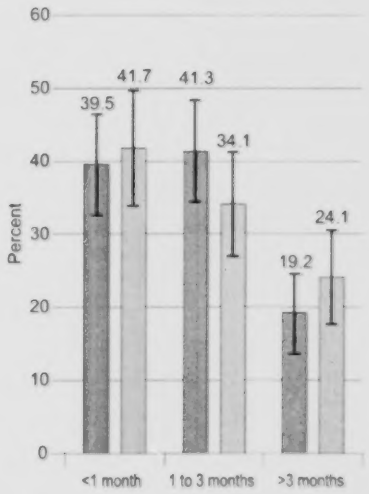
Distribution of reported wait times for selected diagnostic tests, Canada and British Columbia, 2001



Source: Canadian Community Health Survey – Cycle 1.1 – 2000/2001; Health Services Access Survey (supplement to CCHS) – Nov-Dec 2001

Notes:
1. Population who had a diagnostic test in the last 12 months.
2. Excludes persons living on First Nation Reserves and on Crown lands, residents of institutions full-time members of Canadian Armed Forces and residents of certain remote regions. Persons less than 15 years of age and non-respondents were excluded.
3. "E" Use with caution: coefficient of variation between 16.6% and 33.3%
4. Range lines at the end of bars indicate the 95% confidence interval (CI), which illustrate the degree of variability associated with a rate. Wide confidence intervals indicate high variability, thus, these rates should be interpreted and compared with due caution.

Distribution of reported wait times for non-emergency surgeries, Canada and British Columbia, 2001



Source: Canadian Community Health Survey — Cycle 1.1 — 2000/2001; Health Services Access Survey (supplement to CCHS) — Nov-Dec 2001

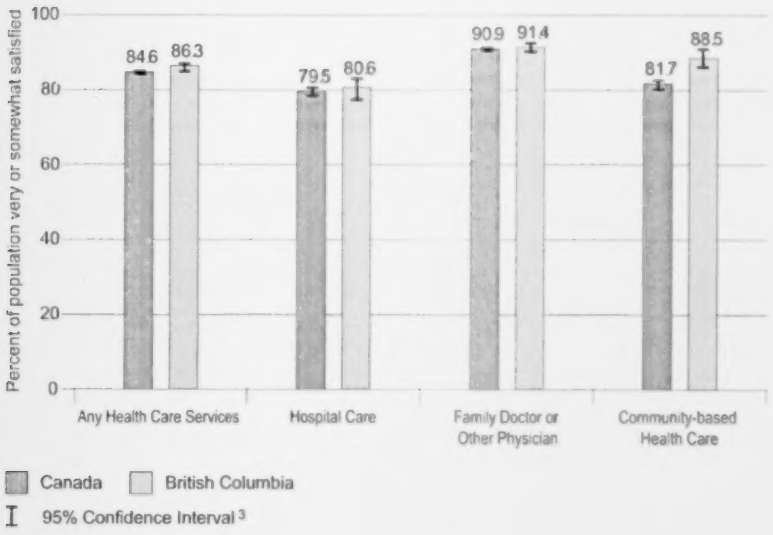
Notes:
1. Population who had a non-emergency surgery in the last 12 months.
2. Excludes persons living on First Nation Reserves and on Crown lands, residents of institutions, full-time members of Canadian Armed Forces and residents of certain remote regions. Persons less than 15 years of age and non-respondents were excluded.
3. Range lines at the end of bars indicate the 95% confidence interval (CI), which illustrate the degree of variability associated with a rate. Wide confidence intervals indicate high variability, thus, these rates should be interpreted and compared with due caution.

Patient satisfaction with health care services by age group and type of service
British Columbia, 2000/2001 (% very or somewhat satisfied)

	Overall Health Services			Hospital Care			Physician Services			Community-Based		
	% Satisfied	95% C.I.		% Satisfied	95% C.I.		% Satisfied	95% C.I.		% Satisfied	95% C.I.	
Age		Low	High		Low	High		Low	High		Low	High
15-19	89.1	85.0	93.1	73.3	65.0	81.6	90.1	85.5	94.7	80.6	64.5	96.6
20-34	83.1	79.6	86.6	72.6	67.4	77.7	87.9	84.4	91.5	86.5	82.2	90.8
35-44	84.7	82.2	87.3	74.8	66.9	82.7	91.3	89.5	93.2	91.7	87.3	96.0
45-64	88.1	85.8	90.4	89.3	86.2	92.3	93.3	91.7	94.8	91.9	87.1	96.7
65+	88.5	85.5	91.6	85.9	80.2	91.5	93.3	90.7	95.8	87.9	82.9	93.0
Total	86.3	85.0	87.7	80.6	77.9	83.4	91.4	90.1	92.7	88.5	86.1	90.9

Source: Canadian Community Health Survey – (National sub-sample approximately 25,000) – Cycle 1.1 – 2000/2001
Notes: Excluded: persons living on First Nations Reserves and on Crown lands, residents of institutions, full-time members of Canadian Armed Forces and residents of certain remote regions. Non-respondents were excluded, as were persons less than 15 years of age.

Patient satisfaction, population aged 15+
Canada and British Columbia, 2000/2001

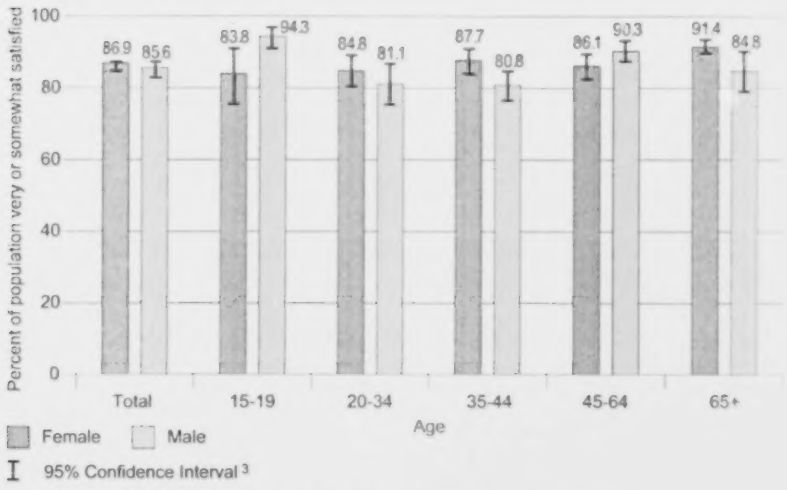


Source: Canadian Community Health Survey (sub sample approximately 25,000) -- Cycle 1.1 2000
Notes:
1. Exclusions: Persons living on First Nation Reserves and on Crown lands, residents of institutions, full-time members of Canadian Armed Forces and residents of certain remote regions are excluded from the sample. Persons less than 12 years of age are not surveyed. Non-Respondents excluded.
2. Any Health Care Services: Population aged 15 and over who reported receiving health care services in the past 12 months.
3. Range lines at the end of bars indicate the 95% confidence interval (CI), which illustrate the degree of variability associated with a rate. Wide confidence intervals indicate high variability, thus, these rates should be interpreted and compared with due caution.

health care. 86.3 percent of the residents of British Columbia were either very satisfied or somewhat satisfied with how overall health services were provided. The Canadian average is 84.6 percent.

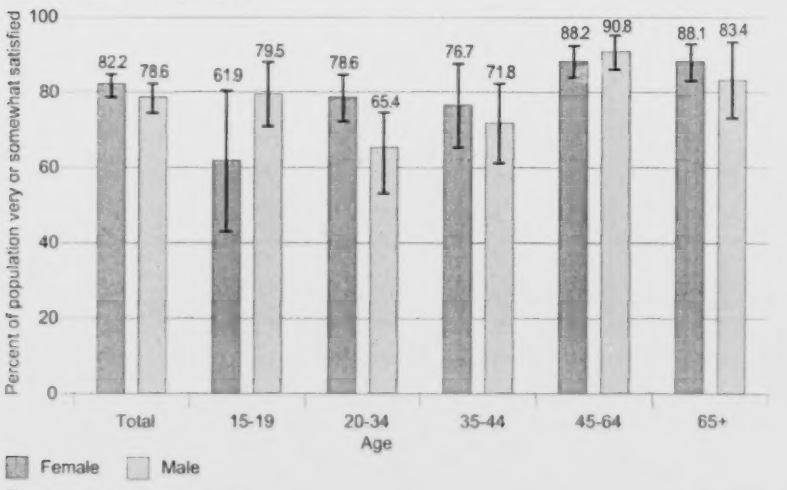
There were a few differences noted in patient satisfaction rates among different age groups in British Columbia. The older age groups, 45-64 years and 65 years and older, report greater satisfaction with hospital care received and with community-based services than do the younger age groups.

Overall patient satisfaction, any health care services received in past 12 months, population aged 15+
British Columbia, 2000/2001



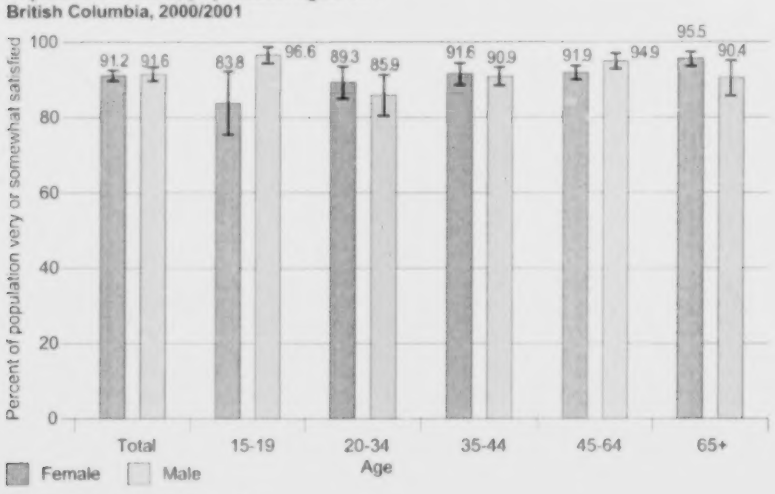
Source: Canadian Community Health Survey (national sub sample approximately 25,000) – Cycle 1.1 2000
Notes:
1. Exclusions: Persons living on First Nation Reserves and on Crown lands, residents of institutions, full-time members of Canadian Armed Forces and residents of certain remote regions are excluded from the sample. Persons less than 12 years of age are not surveyed. Non-Respondents excluded.
2. Any Health Care Services: Population aged 15 and over who reported receiving health care services in the past 12 months.
3. Range lines at the end of bars indicate the 95% confidence interval (CI), which illustrate the degree of variability associated with a rate. Wide confidence intervals indicate high variability, thus, these rates should be interpreted and compared with due caution.

Patient satisfaction, hospital care services received in past 12 months, population aged 15+
British Columbia, 2000/2001



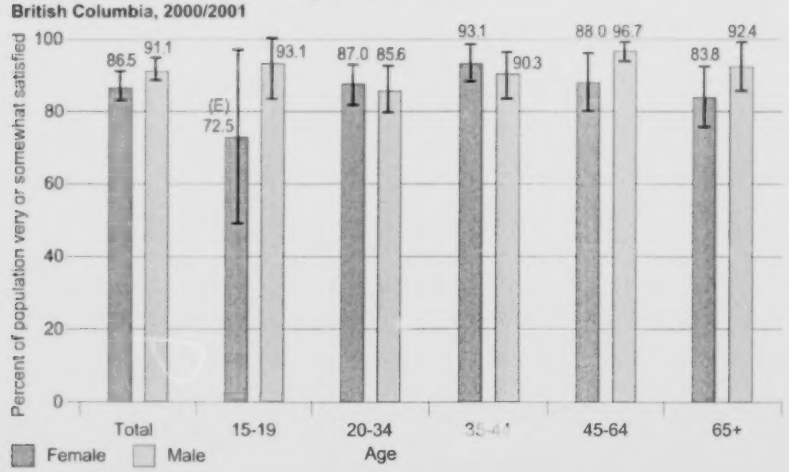
Source: Canadian Community Health Survey (sub national sub-sample approximately 25,000) — Cycle 1.1 2000
Notes:
1. Exclusions: Persons living on First Nation Reserves and on Crown lands, residents of institutions, full-time members of Canadian Armed Forces and residents of certain remote regions are excluded from the sample. Persons less than 12 years of age are not surveyed. Non-Respondents excluded.
2. Hospital Care: Population aged 15 and over who reported receiving hospital care in the past 12 months. This includes inpatient, outpatient and emergency room services.
3. Range lines at the end of bars indicate the 95% confidence interval (CI), which illustrate the degree of variability associated with a rate. Wide confidence intervals indicate high variability, thus, these rates should be interpreted and compared with due caution.

Patient satisfaction, family doctor or other physician services received in past 12 months, population aged 15+
British Columbia, 2000/2001



Source: Canadian Community Health Survey (national sub-sample approximately 25,000) – Cycle 1.1 2000
Notes:
1. Exclusions: Persons living on First Nation Reserves and on Crown lands, residents of institutions, full-time members of Canadian Armed Forces and residents of certain remote regions are excluded from the sample. Persons less than 12 years of age are not surveyed. Non-Respondents excluded.
2. Family Doctor or Other Physician Care: Population aged 15 and over who reported receiving health care services from a family doctor or other physician, excluding those services which may have been received during a hospital visit.
3. Range lines at the end of bars indicate the 95% confidence interval (CI), which illustrate the degree of variability associated with a rate. Wide confidence intervals indicate high variability, thus, these rates should be interpreted and compared with due caution.

Patient satisfaction, community-based health care services received in past 12 months, population aged 15+
British Columbia, 2000/2001



Source: Canadian Community Health Survey (national sub-sample approximately 25,000) — Cycle 1.1 2000
Notes:
1. Exclusions: Persons living on First Nation Reserves and on Crown lands, residents of institutions, full-time members of Canadian Armed Forces and residents of certain remote regions are excluded from the sample. Persons less than 12 years of age are not surveyed. Non-Respondents excluded.
2. Community-based Health Care: Population aged 15 and over who reported receiving community-based health care in the past 12 months, excluding that received through a hospital or doctor s office. Examples of community-based health care include home nursing care, home-based counselling or therapy, personal care and community walk-in clinics.
3. Range lines at the end of bars indicate the 95% confidence interval (CI), which illustrate the degree of variability associated with a rate. Wide confidence intervals indicate high variability, thus, these rates should be interpreted and compared with due caution.

10. Hospital Re-admission Rates

Hospital re-admission rates for selected conditions can provide one measure of the quality of care. Many factors may be related to hospital re-admission for a related condition, for example: medication prescribed at initial discharge from hospital, patient compliance with directions, the quality of follow-up care in the community, and the quality and completeness of care during initial hospitalization. Some of these factors are directly related to care at the hospital while others relate to the availability of appropriate services in the community. Higher than normal re-admission rates should lead health service managers to examine any of the following: practices in hospitals (e.g., early discharge criteria), the availability of appropriate community services, coordination between hospital and community providers, and patient education and instruction.

In order to have comparable information at the national level, a Canadian pooled three-year risk-adjusted rate was calculated using data from those provinces with comparable data. British Columbia is also reporting its yearly risk-adjusted rate. When making comparisons between the British Columbia rate for a specific year and the Canadian pooled three-year rate, it is important to also be aware of the 95 percent Confidence Interval for the yearly rate.

10a. Re-admission for Acute Myocardial Infarction (AMI)

Re-admission for acute myocardial infarction (AMI) is defined as the risk-adjusted rate of unplanned re-admission following admission for acute myocardial infarction. A case is counted as a re-admission if it is for a relevant diagnosis or procedure and occurs within 28 days after the index AMI episode of care. An episode of care refers to all continuous acute care hospitalizations, including transfers.

Risk-adjusted re-admission rates for AMI, British Columbia and Canada, 1997/98 to 1999/2000

	Canada	British Columbia		
	Three-year Risk Adjusted Rate (%)	Risk Adjusted Rate (%)	95% Confidence Interval Low	High
1997/98	7.3*	7.3	6.5	8.2
1998/99	7.3*	7.6	6.8	8.4
1999/2000	7.3*	7.0	6.2	7.8
Three year average		7.3	6.8	7.8

Source: Hospital Morbidity Database, CIHI
Notes:
1. *3-year pooled average: 1997-1999.
2. Risk-adjusted rate is a relative comparison of each province to the overall national average.
3. The average rate includes only provinces/territories for which comparable data were available.
4. Exclusions: records with invalid Health Card Number, discharged as a death or self sign-out, diagnosis of cancer or HIV.

Risk-adjusted re-admission rates for pneumonia British Columbia and Canada, 1997/98 to 1999/2000

	Canada	British Columbia		
	Three-year Risk Adjusted Rate (%)	Risk Adjusted Rate (%)	95% Confidence Interval Low	High
1997/98	3.3*	3.9	3.4	4.4
1998/99	3.3*	2.9	2.4	3.4
1999/2000	3.3*	3.4	2.9	3.9
Three year average		3.4	3.1	3.7

Source: Hospital Morbidity Database, CIHI
Notes:
1. *3-year pooled average: 1997-1999.
2. Risk-adjusted rate is a relative comparison of each province to the overall national average.
3. The average rate includes only provinces/territories for which comparable data were available.
4. Exclusions: records with invalid Health Card Number, discharged as a death or self sign-out, diagnosis of cancer or HIV.

Re-admissions rates for acute myocardial infarction in British Columbia are almost identical to the Canadian average. The three-year average for BC's risk-adjusted re-admission rate for acute myocardial infarction for 1997/98 to 1999/2000 is the same as the Canadian pooled three-year rate. In each of the three years, the Canadian rate falls within the 95 percent Confidence Interval for the British Columbia rates.

10c. Re-admission for Pneumonia

Re-admission for pneumonia is defined as the risk-adjusted rate of unplanned re-admission following admission for pneumonia. A case is counted as a re-admission if it is for a relevant diagnosis or procedure and occurs within 28 days after the index episode of care. An episode of care refers to all continuous acute care hospitalizations, including transfers.

The three-year average re-admission rate for pneumonia in BC at 3.4 percent is slightly above the Canadian pooled three-year average rate of 3.3. In 1997/98, the Canadian pooled three-year risk-adjusted rate of 3.3 was slightly below the 95 percent confidence interval for the British Columbia rate (3.4 – 4.4). In each of the subsequent years the Canadian three-year pooled rate falls within the 95 percent confidence interval for British Columbia.

11. Access to 24/7 First Contact Health Services

11a. Percent who Experience Difficulties Obtaining Routine or On-going Health Services

The percentage who experience difficulties obtaining routine or on-going health services is defined as those who required routine or on-going health services for self

or a family member in the past 12 months and experienced difficulties obtaining them during regular daytime hours or during evenings or weekends.

The ability to obtain routine care when needed is believed to be important in maintaining health, preventing health emergencies, and preventing the inappropriate use of services (e.g., use of hospital emergency rooms for non-emergencies).

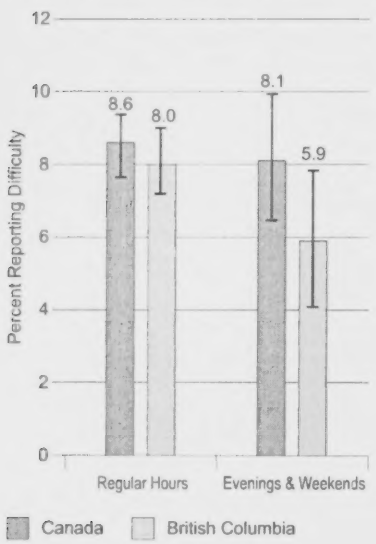
Over 90 percent of Canadians and British Columbians reported no difficulties in obtaining routine or on-going care. There was no significant difference between British Columbians and the Canadian average, either for difficulties encountered during regular hours or on evenings and weekends.

11b. Percent who Experience Difficulties Obtaining Health Information or Advice

The percentage of those experiencing difficulty obtaining health information or advice is defined as those who required health information or advice for self or a family member in the past 12 months and experienced difficulty obtaining it during regular daytime hours, during evenings or weekends, or at night.

Access to information or advice is believed to be important to maintaining health and ensuring appropriate access to health services. Most Canadians do not report difficulties in accessing health information at any time of the day or night. The estimates for the British Columbian population are not statistically different than those for the Canadian population.

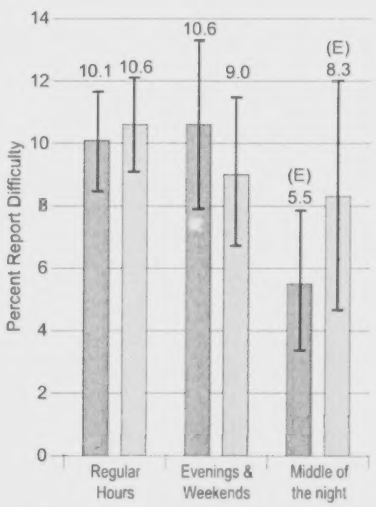
Percent who experienced difficulties obtaining routine or ongoing health health services,
Canada and British Columbia, 2001



Source: Canadian Community Health Survey — Cycle 1.1 — 2000/2001; Health Services Access Survey (supplement to CCHS) — Nov-Dec 2001.

Notes:
1. Excludes persons living on First Nation Reserves and on Crown lands, residents of institutions, full-time members of Canadian Armed Forces, residents of certain remote regions.
2. Non-respondents were excluded from calculations of percentages, both in numerators and denominators.
3. Regular hours are from 9:00 a.m. to 5:00 p.m., Monday to Friday; evenings and weekends from 5:00 p.m. to 9:00 p.m. Monday to Friday or Saturday and Sunday.
4. Range lines at the end of bars indicate the 95% confidence interval (CI), which illustrate the degree of variability associated with a rate. Wide confidence intervals indicate high variability, thus, these rates should be interpreted and compared with due caution.

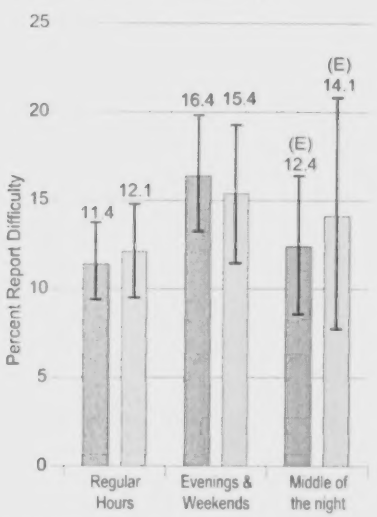
Percent who experienced difficulties obtaining health information or advice,
Canada and British Columbia, 2001



Source: Canadian Community Health Survey — Cycle 1.1 — 2000/2001; Health Services Access Survey (supplement to CCHS) — Nov-Dec 2001.

Notes:
1. Excludes persons living on First Nation Reserves and on Crown lands, residents of institutions, full-time members of Canadian Armed Forces and residents of certain remote regions. Non-respondents were excluded from calculations of percentages, both in numerators and denominators.
2. Household population aged 15 and over.
3. Regular hours are from 9:00 a.m. to 5:00 p.m., Monday to Friday; evenings and weekends from 5:00 p.m. to 9:00 p.m. Monday to Friday or Saturday and Sunday.
4. E Use with caution: coefficient of variation between 16.6% and 33.3%
5. Range lines at the end of bars indicate the 95% confidence interval (CI), which illustrate the degree of variability associated with a rate. Wide confidence intervals indicate high variability, thus, these rates

Percent who experienced difficulty obtaining immediate care for a minor health problem,
Canada and British Columbia, 2001



Source: Canadian Community Health Survey — Cycle 1.1 — 2000/2001; Health Services Access Survey (supplement to CCHS) — Nov-Dec 2001.

Notes:
1. Excludes persons living on First Nation Reserves and on Crown lands, residents of institutions, full-time members of Canadian Armed Forces and residents of certain remote regions.
2. Regular hours are from 9:00 a.m. to 5:00 p.m., Monday to Friday; evenings and weekends from 5:00 p.m. to 9:00 p.m. Monday to Friday or Saturday and Sunday.
3. E Use with caution: coefficient of variation between 16.6% and 33.3%
4. Range lines at the end of bars indicate the 95% confidence interval (CI), which illustrate the degree of variability associated with a rate. Wide confidence intervals indicate high variability, thus, these rates should be interpreted and compared with due caution.

The province of British Columbia provides telephone triage, health information, and advice 24/7 and 365 days per year by specially trained registered nurses. Access to the BC NurseLine includes local and provincial toll-free dialing and TTY services for deaf and hearing-impaired persons. In addition, simultaneous translation services are available in 130 languages.

The self-care program includes three components:

The BC NurseLine has received over 150,000 calls since April 2001 and can be reached by calling: Lower Mainland: 604-215-4700; Province-wide toll-free: 1-866-215-4700; Deaf and Hearing Impaired province wide toll-free: 1-866-889-4700

The BC Health Guide Handbook was delivered to BC households in March 2001 (1.4 million)

The BC Health Guide OnLine provides information on over 2,500 health topics (www.bchealthguide.org)

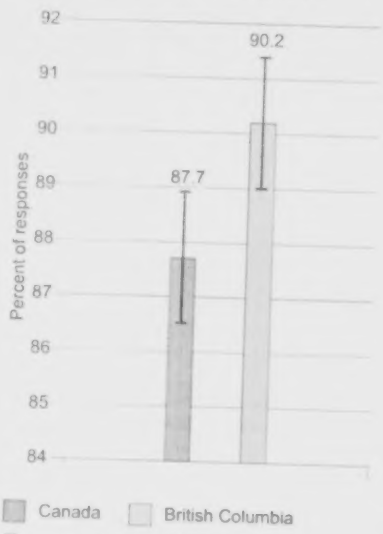
11c. Percent who Experience Difficulty Obtaining Immediate Care for a Minor Health Problem

The percentage who required immediate care for a minor health problem and experienced difficulty obtaining immediate care is defined as those who required immediate care for a minor health problem for self or a family member in the past 12 months and experienced difficulty obtaining it during regular daytime hours, during evenings or weekends, or at night.

The ability to obtain needed care for emergent but minor health problems is believed to be important in restoring health, minimizing health emergencies, and preventing the inappropriate use of services (e.g., use of hospital emergency rooms for non-emergencies).

In 2001, 11.4 percent of Canadians reported difficulty in obtaining immediate care for a minor health problem during regular hours; the British Columbia rate is 12.1 percent. During the evenings and weekends, the rates are higher (16.4 percent in Canada; 15.4 percent in British Columbia).

Percent of population having a regular family physician, Canada and British Columbia, 2001



Source: Canadian Community Health Survey — Cycle 1.1 — 2000/2001, Health Services Access Survey (supplement to CCHS) — Nov-Dec 2001.

Notes:
1. Excludes persons living on First Nation Reserves and on Crown lands, residents of institutions, full-time members of Canadian Armed Forces and residents of certain remote regions. Non-respondents were excluded from calculations of percentages, both in numerators and denominators.
2. Household population aged 15 and over.
3. Range lines at the end of bars indicate the 95% confidence interval (CI), which illustrate the degree of variability associated with a rate. Wide confidence intervals indicate high variability, thus, these rates should be interpreted and compared with due caution.

11d. Percent of Population With a Regular Family Doctor

The percentage of the population with a regular family doctor is defined as the percent of total survey respondents who say "yes" to the question: "Do you have a regular family doctor?"

Establishing an ongoing relationship with a family doctor is believed to be important in maintaining health and ensuring appropriate access to health services.

British Columbians are more likely to have a family doctor, compared to the Canadian average. In British Columbia, 90.2 percent of respondents reported having a family doctor. The Canadian average is 87.7 percent.

12. Home and Community Care Services

12a & 12b. Admissions to Publicly-funded Home Care Services per capita, and at age 75 Years and Older, per capita

Admissions to publicly-funded home care services is defined as the number of admissions to publicly-funded home care services, including home health and home support services, per capita and at age 75 years and older, per capita.

In recent years, governments have supported programs to deliver some health services to people in their homes, as an alternative to admitting people to acute care or long term care facilities. This trend has certain benefits, for example: people needing care are more comfortable, and their life styles and independence are maintained for as long as possible; facility space can be reserved for those with greater health care needs; home care is often less expensive than facility-based care.

As more home care programs are implemented, it is expected that these services will be provided to increasing numbers of people. The indicators proposed here can show progress in the implementation of these programs, as long as there are remaining health needs which can be met through home care programs. At some point, however, home care programs may meet all the needs that can be addressed through such services; volume measures by themselves cannot show when all the health service needs are being met, nor can they show how well these needs are being met.

Age-standardized admissions per 100,000 population to publicly-funded home care services
in British Columbia, Alberta and Ontario, 1998/99 to 2000/01

	1998/99			1999/2000			2000/01		
	BC	Alberta	Ontario	BC	Alberta	Ontario	BC	Alberta	Ontario
All ages	1,862	2,251	2,262	1,857	2,292	2,340	1,791	..	2,192
Age 75 years and older	19,868	26,093	16,942	19,766	26,484	17,429	18,893	..	16,304

Sources: Ad hoc survey of provincial and territorial ministries; Statistics Canada census; ISQ. Estimates used are October 1 of the relevant year.

Notes:
1. Age-standardized according to the 1991 Canadian population. Age groups "Under 1 year" and "1-4 years" have been combined.
2. Data may include multiple admissions for the same client (an individual may be counted more than once in a given fiscal year only if he/she was discharged from the home care program and accepted for another period of service within that year).

Trends in home care volumes may be compared with trends in utilization of facility-based services (such as acute care admissions) to illustrate that increased availability of high quality home care can reduce hospital utilization. High-quality home care services would be expected to reduce the need for acute care admissions or emergency care for people with certain chronic health conditions [see Indicator 12d, ambulatory care sensitive conditions], and to delay or prevent the need for long-term facility care. For example, as home care use among the elderly increases, there should be a corresponding decrease in waiting for long-term care space and an increase in the acuity of long-term care residents. Reporting data on these expected impacts of home care programs along with these volume indicators provides an indirect way of gauging the quality of these programs.

Only British Columbia, Alberta, and Ontario are able to report age-standardized (i.e. comparable) admission rates, so no national rates are available for comparison. Home care admissions in British Columbia decreased over the three years, from 1,862 to 1,791 per 100,000 for all ages, and from 19,868 to 18,893 per 100,000 for ages 75 and older. The rates for admissions for those aged 75 years and older are much higher than the rate for the total population in all three jurisdictions; these are over 10 times as high in both Alberta and British Columbia.

12d. Hospitalization Rate for Ambulatory Care Sensitive Conditions

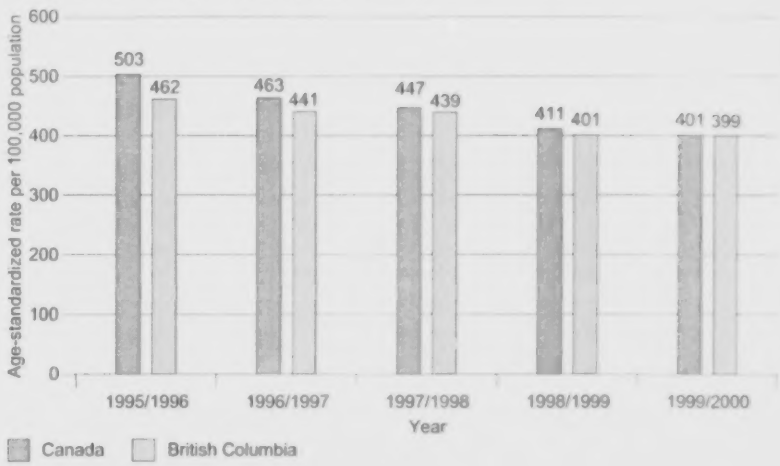
The hospitalization rate for ambulatory care sensitive conditions is defined using age-standardized inpatient acute care hospitalization rate for conditions where appropriate ambulatory care may prevent or reduce the need for admission to hospital.

Hospitalization rates for conditions which may often be cared for in the community are one indicator of appropriate access to community-based care. These are long-term health conditions which can often be managed with timely and effective treatment in the community, without hospitalization. These conditions include diabetes, asthma, alcohol and drug dependence and abuse, neuroses, depression, hypertensive disease, and others. Although preventive care, primary care, and community-based management of these conditions will not eliminate all hospitalizations, such steps could eliminate many of them.

Health care professionals generally believe that managing these conditions before a patient requires hospitalization improves the patient's health, contributes to better overall community health status, and often saves money because community-based care usually costs less than hospitalization. Optimizing the management and treatment of these conditions will contribute to both improved patient health outcomes and more efficient resource utilization.

The hospitalization rates for these conditions varies widely; for example, there are large rural/urban differences.

Hospitalization rate for ambulatory care sensitive conditions,
Canada and British Columbia, 1995/96 to 1999/2000

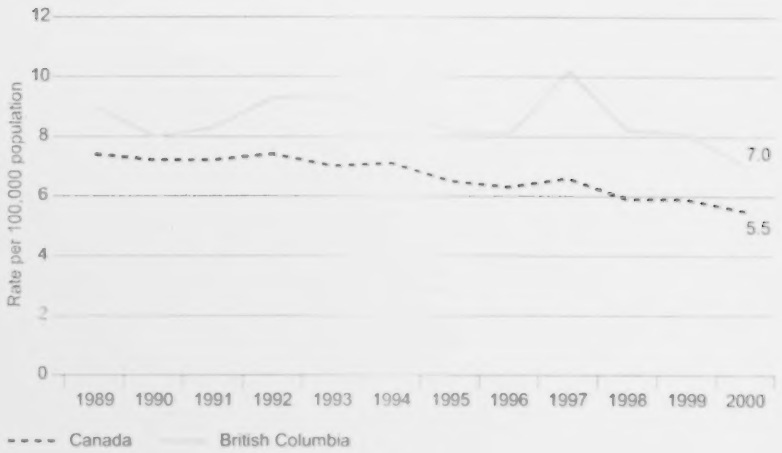


Source: Hospital Morbidity Database, CIHI, Census, Statistics Canada; ISQ.
Notes:
Exclusions: Patients not treated as inpatients in acute care hospitals (e.g. those seen only in an emergency department or chronic care institution).

One factor influencing the variation in rates is likely to be the extent to which preventive care and management within the community are available and accessible. Tracking hospitalization rates for these conditions over time can provide an indicator of the impact of community and home-based services

The rate for ambulatory-sensitive conditions has decreased in both British Columbia and Canada from 1995/96 to 1999/2000. This may indicate more appropriate utilization of hospital resources or better preventive care and management within the community. In 1995/96 the rate per 100,000 population in Canada was 503 and 462 in British Columbia. In 1999/2000, the Canadian rate is 401 and the British Columbia rate is 399.

Tuberculosis incidence rate,
Canada and British Columbia, 1989-2000



Source: Canadian Tuberculosis Reporting System (CTBRS), April 9, 2002
Note:
1. Tuberculosis incidence rate: Rate of incident cases of infectious pulmonary tuberculosis reported by calendar year.
2. * 2000 data are provisional until publication of the Tuberculosis in Canada - 2000 Annual Report.
3. Numbers in chart indicate values for most recent year available.

13. Public Health Surveillance and Protection

13a. Tuberculosis Incidence Rate

The tuberculosis incidence rate is defined as the rate of incident cases of infectious pulmonary tuberculosis reported by calendar year.

TB is an important public health problem that has become more prominent in recent years. Incidence is linked to high-risk groups such as recent immigrants, First Nations communities, and people co-infected with HIV. Multiple drug resistance is also emerging as a problem. As can be seen in the following charts, British Columbia's incidence rate for TB is higher than the national rate. However, for the population sub-groups for which data have been provided, the British Columbia rate is very similar to or less than the Canadian rate for each population group.

13b. Reported HIV Diagnoses

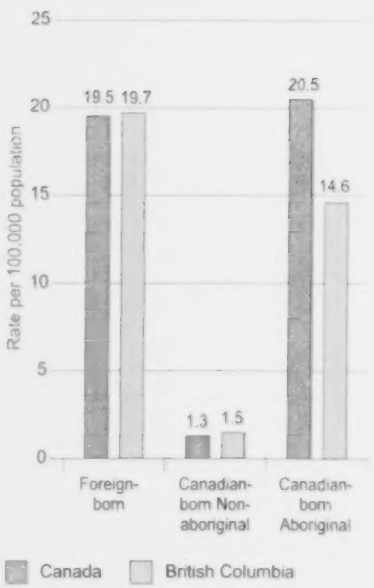
Reported HIV diagnoses is defined as the estimate of new diagnoses of HIV infection, based on new positive HIV test reports.

The number of new HIV diagnoses is a function of both HIV incidence and HIV testing patterns.

The number of HIV test reports in a given year includes individuals infected in that year as well as individuals infected in previous years; most individuals will not be diagnosed in the year they are infected. In addition to changes in HIV incidence and testing patterns, the number of new diagnoses is also influenced by reporting delays and improved removal of duplicate reports. Thus, changes in the numbers/rates of reported positive tests must be interpreted with caution. Nevertheless, these numbers are useful in tracking the HIV epidemic.

HIV is not legally reportable in BC but BC's enhanced HIV surveillance system provides some of the best epidemiologic data in Canada. BC's enhanced HIV

Tuberculosis incidence by origin,
Canada and British Columbia, 2000



Source: Canadian Tuberculosis Reporting System (CTBRS), April 9, 2002
Notes:
1. Tuberculosis incidence rate: Rate of incident cases of infectious pulmonary tuberculosis reported by calendar year.
2. * 2000 data are provisional until publication of the Tuberculosis in Canada - 2000 Annual Report.

surveillance system eliminates duplicate reports and minimizes reporting delay so that the BC data includes only "newly positive HIV tests" and is thus a better indicator of recent infection.

In 2001, BC noted an overall increase in newly positive HIV tests for the first time since 1996; this increase was not statistically significant but it is worrying.

An increase in new diagnoses among male homosexuals has been noted in several North American locales, including San Francisco and Toronto. The Ministry of Health and the BC Centre for Disease Control are developing a strategic plan to deal with this increase. There were no other epidemiological trends of note, i.e. gender, age, ethnicity, or geographic location. Testing patterns are affected by socio-economic status and HIV testing is likely to be lower in marginal groups. This may be especially true for Aboriginals on reserve.

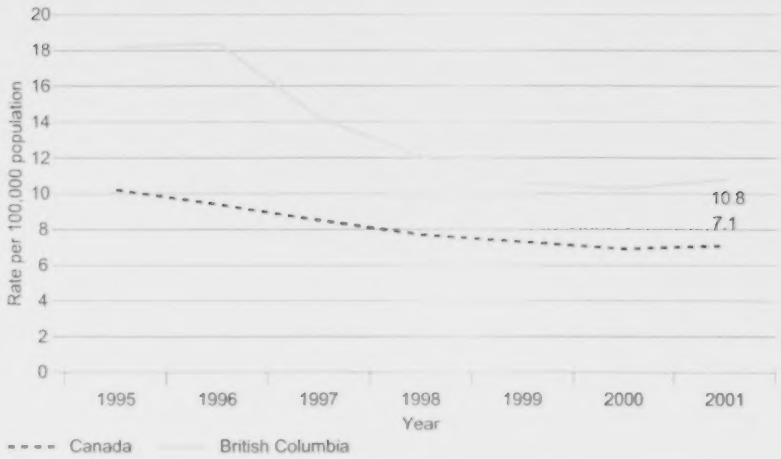
13c. Verotoxogenic *E. coli* Incidence Rate

Verotoxogenic *E coli* is a class of bacteria responsible for serious water borne disease outbreaks (for example, Walkerton) and food borne disease (for example, "Hamburger Disease"). As such Verotoxogenic *E coli* may be considered an approximate indicator for food and water-borne disease issues.

The Verotoxogenic *E. coli* incidence rate is defined as the rate of incident cases reported by year. A confirmed case is defined as laboratory confirmation of infection with or without symptoms with isolation of verotoxin producing *Escherichia coli* from an appropriate clinical specimen

The BC rate in 2001 for verotoxogenic *E. coli* is 2.7 per 100,000 population. The Canadian rate is 4.0.

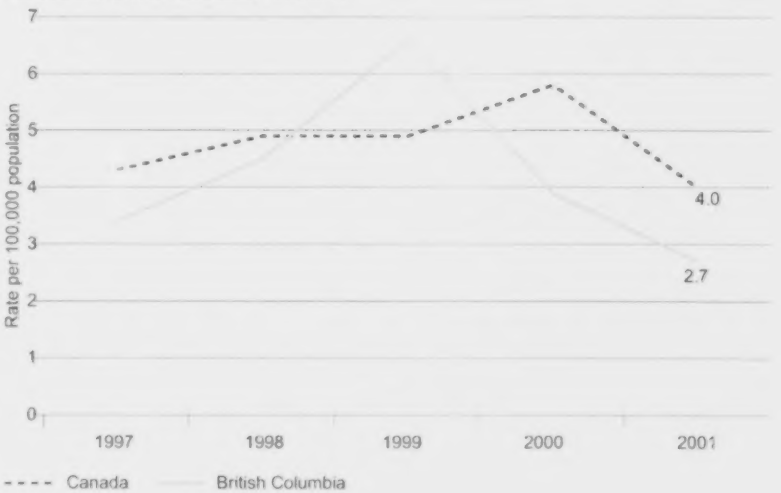
Reported HIV diagnoses,
Canada and British Columbia, 1995-2001



Source: Health Canada. HIV and AIDS in Canada. Surveillance report to December 31, 2001. Division of HIV/AIDS Epidemiology and Surveillance.

Notes:
1. Duplicate test removal (repeat tests for the same individual who is HIV positive), which result in an overestimate of the number of positive HIV test reports, varied for the period 1985-1994; therefore annual trends in this period are not displayed in this report as comparisons between years may not be valid.
2. The number of HIV test reports in a given year includes individuals infected in that year, and those infected in previous years. Some infected in a given year will be diagnosed (tested positive for HIV) in that year, but the majority will not be diagnosed until a subsequent year. Therefore, the relationship between HIV incidence and positive HIV test reports is determined by HIV testing behaviour, which is influenced by many factors. Positive HIV test reports should not be referred to as incidence or as new infections, but as new diagnoses.
3. Changes to the number of reported HIV positive tests as well as observed trends must be interpreted with caution. There are a number of factors that may contribute to changes in reported HIV positive tests. In addition to changes in the number of new infections per year, other factors include changes in testing patterns (i.e. who comes forward for testing and when), improved duplicate removal, and reporting delay. The distribution of proportions of positive HIV tests among exposure categories should also be interpreted with caution due to the high number of reports in which gender or exposure category is not identified.
4. Numbers in chart indicate values for most recent year available.

Verotoxogenic *E.coli*, incidence rate,
Canada and British Columbia, 1997-2001



Source: Notifiable disease records

Notes:
1. 2000 and 2001 numbers are Preliminary and are Subject to Change.
2. Numbers on chart indicate most recent year available data.

13d. Chlamydia Incidence Rate

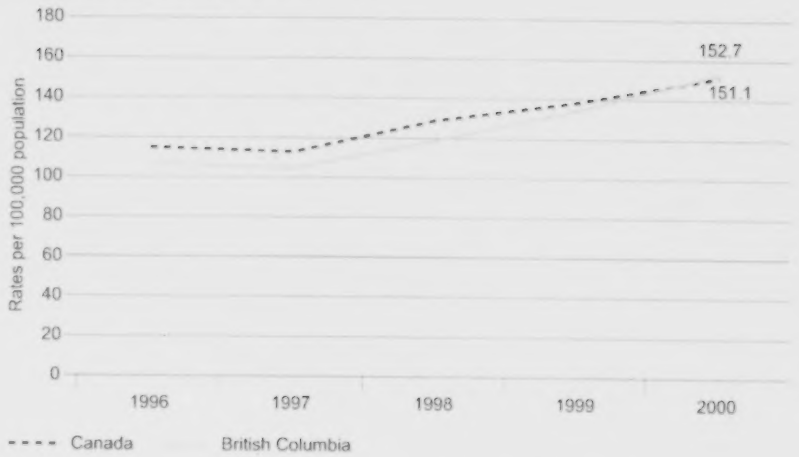
The incidence rate for chlamydia is defined as the rate of reported genital infections, by calendar year.

Chlamydia is a common sexually transmitted disease that may result in female infertility and ectopic pregnancy. The higher incidence rates relative to other STDs are a more sensitive indicator of change in risk behaviours and reflect the effectiveness of primary and secondary prevention.

The new diagnostic test introduced around 1997 (nucleic acid amplification test, or NAAT) initially accounted for some of the increase in incidence. However, since the incidence of chlamydia and other sexually transmitted diseases has continued to increase, it can be assumed there actually are more cases now, and we are no longer seeing the effect of the new test.

The BC incidence rate of chlamydia was 152.7 per 100,000 population in 2000. The Canadian average was 151.1 per 100,000. Chlamydia genital infection is widely dispersed geographic and socio-economically. Since it is usually asymptomatic as well, tracking new diagnoses depends on testing patterns. Provinces doing the best job of addressing chlamydia may, in fact, show increasing rates for a number of years. In BC, chlamydia is most common in 15- 19-year-old (1047/100,000) and 20- 24-year-old (979/100,000) females. That pattern has not changed in many years.

Chlamydia incidence rates,
Canada and British Columbia, 1996-2001



Source: Division of Sexual Health Promotion and STD Prevention & Control, Bureau of HIV/AIDS, STD & TB, Health Canada in 2001

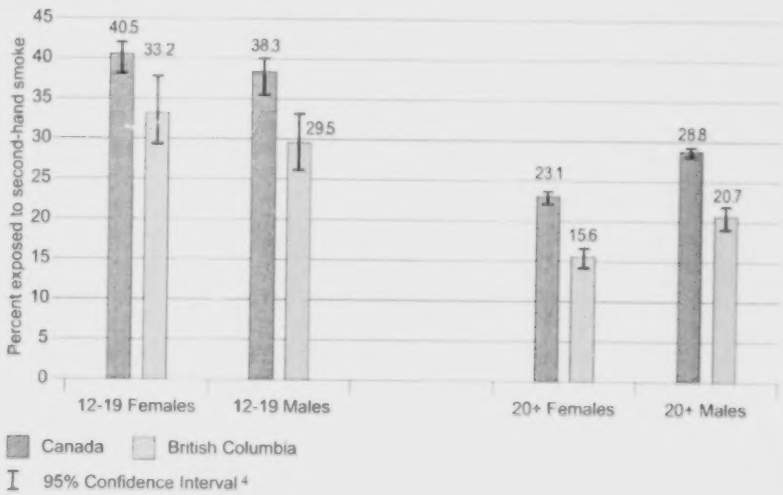
Notes:
1. 2000 cases updated in November 2001 and changes are anticipated.
2. Numbers on chart indicate most recent year available data.

13e. Exposure to Environmental Tobacco Smoke

Exposure to environmental tobacco smoke is defined as the proportion of the non-smoking population regularly exposed to environmental tobacco smoke.

This indicator reflects the effectiveness of the public health system in protecting non-smokers against exposure to tobacco smoke in public spaces and work places.

Exposure to environmental tobacco smoke, ages 12-19, 20+, by sex,
Canada and British Columbia, 2000/01



Source: Statistics Canada, Canadian Community Health Survey, 2000/01

Notes:
1. Non-smoking population aged 12 and over who were exposed to second-hand smoke on most days in the month preceding the survey.
2. Excludes persons living on First Nation Reserves and on Crown lands, residents of institutions, full-time members of Canadian Armed Forces and residents of certain remote regions.
3. Excludes Non-respondents.
4. Range lines at the end of bars indicate the 95% confidence interval (CI), which illustrate the degree of variability associated with a rate. Wide confidence intervals indicate high variability, thus, these rates should be interpreted and compared with due caution.

The relationship between environmental tobacco smoke and adverse health effects is well accepted. Besides being a known mucous membrane irritant, second-hand smoke exposure is linked to increases in mortality from lung cancer and cardiovascular disease. Second-hand smoke has serious consequences for children: smoking mothers bear children with lower birth weights, and children living in homes where they are exposed to tobacco smoke have higher rates of asthma and respiratory tract problems. There is strong evidence of an association between exposure to environmental tobacco smoke and respiratory illness.

The rates for exposure to environmental smoke were lower in British Columbia than the Canada rates for all reported age and gender groups in 2000/01. Although British Columbia has done well in this regard, there are still worrying statistics. In both British Columbia and Canada, the 12- to 19-year age groups, both male and female, report higher exposure to environmental smoke than adults age 20 or older. 29.5 percent of males and 33.2 percent of females age 12-19 in British Columbia report exposure to environmental smoke.

14. Health Promotion and Disease Prevention

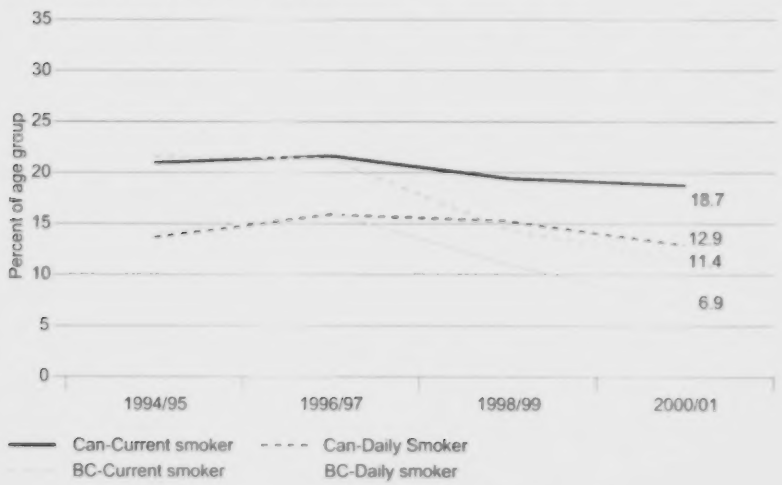
14a. Percent Teenaged Smokers

The percent of teenaged smokers is defined as the population aged 12 to 19 reporting they are both current smokers and, if so, are also daily smokers at the time of the interview.

Tobacco use is the leading cause of preventable illness and death in Canada. Health Canada estimates that smoking is responsible for more than 45,000 deaths per year. The indicator is the proportion of those aged 12-19 who report current smoking. Because of the addictive nature of nicotine, youth smoking is of particular concern. It is estimated that approximately eight out of every 10 people who try cigarettes become habitual smokers.

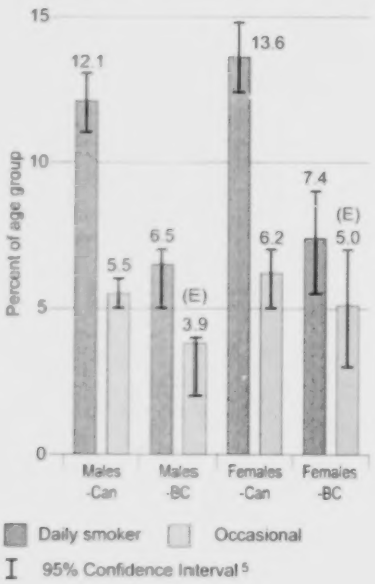
The BC rate for teenagers who are current smokers is 11.4 percent, while 6.9 percent report being daily smokers. The Canadian average for teenagers who are current smokers is 18.7 percent. 12.9 percent of Canadian teenagers report being daily smokers. In BC more teenaged girls than boys report being current smokers (12.4 percent compared with 10.4 percent). The Atlanta, Georgia, Centre for Disease Control's Best Practices for

Percent current teenaged smokers, Canada and British Columbia, 1994/95 - 2000/01



Source: Canadian Community Health Survey 2000, National Population Health Survey, 1994, 1996, 1998, ISQ
Notes:
1. Population aged 12-19 who reported their smoking status.
2. Excludes persons living on First Nation Reserves and on Crown lands, residents of institutions, full-time members of Canadian Armed Forces and residents of certain remote regions.
3. Adjusted for Non-respondents.
4. Current smokers are those who smoke on either a daily or an occasional basis. Daily smoking refers to smoking at least one cigarette per day for each of the 30 days preceding the survey.

Percent current teenaged smokers, by sex
Canada and British Columbia, 2000/01



Source: Canadian Community Health Survey, National Population Health Survey, 1994, 1996, 1998, ISQ
Notes:
1. Population aged 12-19 who reported their smoking status.
2. Excludes persons living on First Nation Reserves and on Crown lands, residents of institutions, full-time member of Canadian Armed Forces and residents of certain remote regions.
3. Excludes non-respondents.
4. Current smokers are those who smoke on either a daily or an occasional basis. Daily smoking refers to smoking at least one cigarette per day for each of the 30 days preceding the survey.
5. Range lines at the end of bars indicate the 95% confidence interval (CI), which illustrate the degree of variability associated with a rate. Wide confidence intervals indicate high variability, thus, these rates should be interpreted and compared with due caution.

Comprehensive Tobacco Control Programs has data that shows that implementing comprehensive tobacco control programs produces substantial reductions in tobacco use. These data show that British Columbia remains a leader in tobacco control in Canada.

14b. Physical Activity

The definition of physical activity is the percent of the population aged 12 or over reporting a physical activity index of either "active" or "inactive."

Physical inactivity is a major risk factor for a number of chronic diseases and conditions such as heart disease, osteoporosis, diabetes, and gastrointestinal cancer. Maintaining physical activity is associated with a range of health benefits. Many studies have shown that regular physical activity confers major heart health. Recent evidence from the National Population Health Survey supports this conclusion, and also shows that physically active individuals are less likely to become depressed.

Although a higher percentage of the population in British Columbian is physically active compared to the population of Canada, physical inactivity remains high (38 percent) and therefore a significant public health issue. Furthermore, less than one third of British Columbians achieve the level of physical activity that confers optimal health benefits.

Physical activity, male & female by age group,
British Columbia, 2000/01

Physically inactive

Physically active - some health benefits but little cardiovascular health

Physically active - exercise level required for cardiovascular health

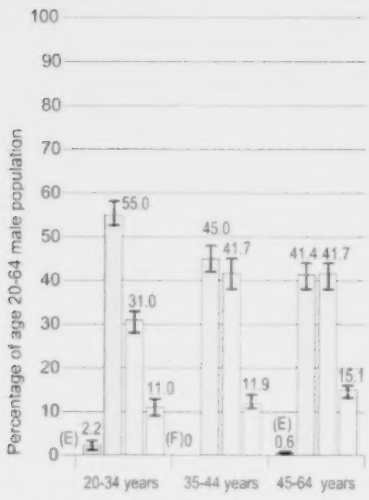
Source: Canadian Community Health Survey – Cycle 1.1, 2000, National Population Health Survey, 1994, 1996, 1998, ISQ
Notes:
1. Physically active* level of physical activity expending energy more than 1.5kcal/kg/day. Moderately active: 1.5-2.9 kcal/kg/day; Physically inactive: level of physical activity less than 1.5 kcal/kg/day.
2. Exclusions: Persons living on First Nation Reserves and on Crown lands, residents of institutions, full-time members of Canadian Armed Forces and residents of certain remote regions are excluded from the sample. Persons less than 12 years of age are not surveyed. Non-Respondents excluded, so numbers do not total 100%

Physical activity,
British Columbia and Canada, 1995 to 2000/01
(Percents do not total to 100% because some individuals surveyed did not answer this question.)

	1994/95	1996/97	1998/99	2000/01
Active (%)				
BC	49.2	49.3	52.4	49.0
Canada	39.4	41.9	45.5	42.6
Inactive (%)				
BC	44.9	49.1	43.9	38.0
Canada	54.6	55.1	51.3	49.1

Source: Canadian Community Health Survey – Cycle 1.1, 2000, National Population Health Survey, 1994, 1996, 1998, ISQ
Notes:
1. Physically active: level of physical activity expending energy more than 1.5 kcal/kg/day. Physically inactive: level of physical activity less than 1.5 kcal/kg/day.
2. Exclusions: Persons living on First Nation Reserves and on Crown lands, residents of institutions, full-time member of Canadian Armed Forces and residents of certain remote regions are excluded from the sample. Persons less than 12 years of age are not surveyed.
3. Non-Respondents excluded, therefore totals do not add up to 100%

Body Mass Index (BMI), males, by age,
British Columbia, 2000/01



Underweight - BMI <18.5

Acceptable weight - BMI 18.5-24.9

Overweight - BMI 25.0-29.9

Obese - BMI 30.0+

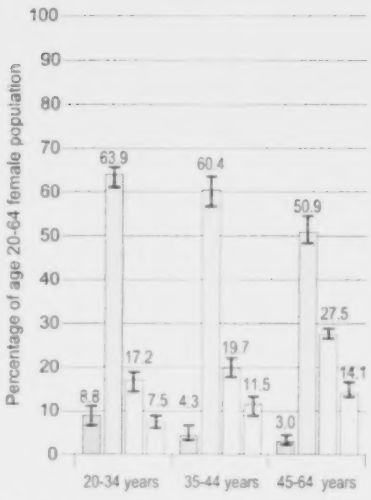
95% Confidence Interval [4]

Source: Canadian Community Health Survey — Cycle 1.1, 2000; National Population Health Survey, 1994, 1996, 1998; ISQ

Notes:

1. Excludes persons living on First Nation Reserves and on Crown lands, residents of institutions, full-time member of Canadian Armed Forces and residents of certain remote regions. Counts for Canada include territories. Also excludes pregnant women, persons less than 3 feet (0.914 metres) tall or greater than 6 feet 11 inches (2.108 metres). Data for 'Body mass index, unstated' are omitted.
2. Body mass index (BMI), International standard, relates weight to height, is a common method of determining if an individual's weight is in a healthy range based on their height. The index is: under 18.5 (underweight), 18.5-24.9 (acceptable weight), 25.0-29.9 (overweight) and 30.0 or higher (obese).
3. Data with a coefficient of variation (CV) from 16.6% to 33.3% are identified by an (E) and should be interpreted with caution. Data with a CV greater than 33.3% were surpressed (F) due to extreme sampling variability.
4. Range lines at the end of bars indicate the 95% confidence interval (CI), which illustrate the degree of variability associated with a rate. Wide confidence intervals indicate high variability, thus, these rates should be interpreted and compared with due caution.

Body Mass Index (BMI), females, by age,
British Columbia, 2000/01



Underweight - BMI <18.5

Acceptable weight - BMI 18.5-24.9

Overweight - BMI 25.0-29.9

Obese - BMI 30.0+

95% Confidence Interval [4]

Source: Canadian Community Health Survey – Cycle 1.1, 2000; National Population Health Survey, 1994, 1996, 1998; ISQ

Notes:

1. Excludes persons living on First Nation Reserves and on Crown lands, residents of institutions, full-time member of Canadian Armed Forces and residents of certain remote regions. Counts for Canada include territories. Also excludes pregnant women, persons less than 3 feet (0.914 metres) tall or greater than 6 feet 11 inches (2.108 metres). Data for "Body mass index, unstated" are omitted.
2. Body mass index (BMI), International standard, relates weight to height, is a common method of determining if an individual's weight is in a healthy range based on their height. The index is: under 18.5 (underweight), 18.5-24.9 (acceptable weight), 25.0-29.9 (overweight) and 30.0 or higher (obese).
3. Data with a coefficient of variation (CV) from 16.6% to 33.3% are identified by an (E) and should be interpreted with caution.
4. Range lines at the end of bars indicate the 95% confidence interval (CI), which illustrate the degree of variability associated with a rate. Wide confidence intervals indicate high variability, thus, these rates should be interpreted and compared with due caution.

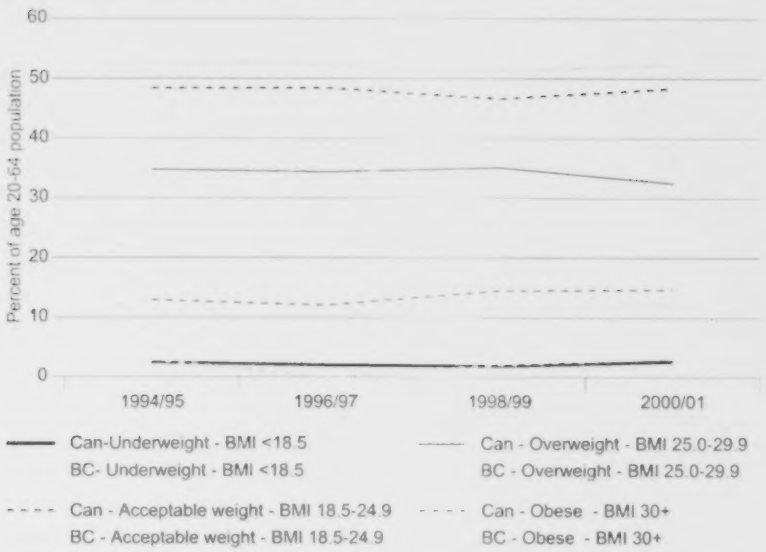
14c. Body Mass Index

Body mass index (BMI) is based on self-reported height and weight, and calculated for persons 20- to 64-years-old, excluding pregnant women. Due to different rates of growth for individuals under 20 years of age, the standard BMI is not considered a suitable indicator for this group. BMI is calculated as weight (in kilograms) divided by height (in meters) squared.

BMI is the most common method of determining if an individual's weight is in a healthy range. Data on height and weight are based on self-report survey responses. Individuals may not always report reliably. The effect of excess weight as a risk factor for various diseases increases with BMI above the threshold of 25; this is a widely used standard in the health literature.

Over 40 percent of British Columbians are either overweight or obese. There are significant differences across age and sex groups. For example, 53.6 percent of British Columbian men 35-44 years old and 56.8 percent of men 45-64 years old are either overweight or obese. Among British Columbian females, 31.2 percent of those 35-44 years old and 41.6 percent of those 45-64 years old are either overweight or obese. Excess weight is associated with the onset of a number of chronic diseases such as diabetes and heart disease and is therefore a serious public health concern.

Body Mass Index (BMI)
Canada and British Columbia, 1994/95 - 2000/01



Source: Canadian Community Health Survey -- Cycle 1.1, 2000; National Population Health Survey, 1994, 1996, 1998; ISQ
Notes:
1. Excludes persons living on First Nation Reserves and on Crown lands, residents of institutions, full-time member of Canadian Armed Forces and residents of certain remote regions. Counts for Canada include territories. Also excludes pregnant women, persons less than 3 feet (0.914 metres) tall or greater than 6 feet 11 inches (2.108 metres). Data for "Body mass index, unstated" are omitted.
2. Body mass index (BMI), International standard, relates weight to height, is a common method of determining if an individual's weight is in a healthy range based on their height. The index is: under 18.5 (underweight), 18.5-24.9 (acceptable weight), 25.0-29.9 (overweight) and 30.0 or higher (obese).
3. Numbers on chart indicate most recent year data available.

14d. Immunization for Influenza for 65+

Immunization for influenza for 65+ is defined as the population of those aged 65 and older who report having a flu shot in the past year

The indicator reports time of last immunization. Individuals aged 65 and over who have not been immunized in the past year are asked why not. Data are available from the CCHS for a subset of the sample, which allows for estimates at provincial and national levels.

Sixty percent of the population 65 and over in BC received immunizations for influenza in 2000. The Canadian average was 63 percent. Individuals age 75 years and older are more likely to have received immunization for influenza in the past year than those aged 65-74. This is true for both British Columbia and Canada.

Immunization for influenza for ages 65 years and older,
British Columbia and Canada, 2000

	British Columbia		Canada	
	Males	Females	Males	Females
Age 65 – 74 years				
Immunized in past year	53.6%	56.4%	56.0%	62.4%
Immunized more than a year ago	13.7%	F	8.4%	7.1%
Never immunized	19%	28.9%	28.5%	27.1%
Age 75 years and older				
Immunized in past year	66.8%	68.2%	67.8%	68.7%
Immunized more than a year ago	F	10.1%	5.2%	9.1%
Never immunized	12.1%	15.1%	16.4%	17.9%

Source: Canadian Community Health Survey (sub sample)– Cycle 1.1, 2000; ISQ
Notes:
1. Excludes persons living on First Nation Reserves and on Crown lands, residents of institutions, full-time members of Canadian Armed Forces and residents of certain remote regions.
2. Population aged 12 and over who reported when they had their last influenza immunization (flu shot).
3. "No" values are the sum of those reporting never being immunized plus those immunized one year or more ago.
4. Data with a coefficient of variation (CV) greater than 33.3% were suppressed (F) due to extreme sampling variability.

Technical Appendix

This technical appendix is a consolidation of technical information about the indicators (primarily sources of data and calculation of indicators) from two documents, the *Plan for Federal/Provincial Reporting on the 14 Indicator Areas*, and *Appendix 1 (Technical Notes)*. The definition of each indicator is contained in the main body of the report.

Indicator area 1. Life expectancy

1a. Life expectancy

Calculation: Life expectancy is calculated using mortality rates with Greville's method for abridged life tables, using five-year age groupings of both population and mortality rate.

Exclusions: Non-residents of Canada are excluded from the deaths and population estimates used for the life tables

Source: Statistics Canada, Vital Statistics files, Birth and Death Databases and Demography Division (population estimates); ISQ

References: *The impact of estimation method and population adjustment on Canadian life table estimates.* Ng E, Gentleman JF in Health Reports. 1995; 7(3): 15-22.; Community Health Indicators – Definitions and Methods (Statistics Canada web site; Statistics Canada Catalogue 84-214-XPE; Statistical Report on the Health of Canadians, ACPH, 1999.

1b. Disability-free life expectancy (DFLE)

See also 1a above.

Exclusions: Non-residents of Canada are excluded from the deaths and population estimates used for the life tables. In addition, individuals living on military bases or First Nation reserves are excluded from the health survey and are thus implicitly treated as having the same average rates of disability as the rest of the population.

Source: Statistics Canada, Vital Statistics, Death Database and Demography division; census (institutional population counts). Note that this indicator is calculated for only the most recent data year available (1996); trends are not available.

Indicator area 2. Infant mortality

Statistics Canada has provided an infant mortality indicator adjusted to exclude the number of live births of infants with a birth weight less than 500 grams from the numerator (infant deaths) and the denominator (live births).

Numerator:	Number of deaths (excluding estimated number weighing less than 500 grams at birth) at less than one year of age, in a given year [for the jurisdiction]
Denominator	Total live births weighing at least 500 grams in a given year [for the jurisdiction]
Calculation:	(Number of deaths/total live births) x 1,000
Exclusions:	Births to mothers not resident in Canada, and infant deaths to non-residents of Canada. Infants born outside the province/territory of residence of their mothers or infants who die outside the province/territory of their mother are included in the rates for the mother's province/territory of residence. For example, Hull, Quebec babies who die in Ontario are not counted in the infant mortality rates for Ontario; they are counted in the infant mortality rates for Quebec.
Source:	Statistics Canada, Vital Statistics, Births and Deaths data bases; ISQ
References:	Community Health Indicators – Definitions and Methods, Statistics Canada website; Statistical Report on the Health of Canadians, ACPH, 1999.

Indicator area 3. Low birth weight

Numerator:	Number of live births ≥500 and <2500 grams within the specified year
Denominator:	Total live births with known birth weight ≥500 grams within the specified year
Calculation:	Low birth weight percentage = (numerator/denominator) x 100 -births are assigned to jurisdiction by mother's P/T of residence -no adjustment for age of mother
Exclusions:	Births with unknown birth weight; births to mothers not resident in Canada are excluded from the numerator and denominator; infants born outside the province/territory of residence of their mothers are included in the rates for the mother's province/territory of residence.
Source:	Statistics Canada, Vital Statistics, Birth database; ISQ
References:	Statistics Canada Catalogue 84F0210XPB, Births and Deaths; Community Health Indicators – Definitions and Methods, CIHI, 1995; Statistical Report on the Health of Canadians, ACPH, 1999; Stat Can web site.

Indicator area 4. Self-reported health

Numerator:	Estimated number of persons reporting excellent or very good health within a survey cycle for a given jurisdiction (response categories are excellent, very good, good, fair, poor)
Denominator:	Total population aged 12 and over in the jurisdiction
Calculation:	(Numerator/denominator) x 100, with weighting adjusted to reflect non-response
Exclusions:	Persons living on First Nation Reserves and on Crown lands, residents of institutions, full-time members of Canadian Armed Forces and residents of certain remote regions are excluded from the sample. Persons less than 12 years of age are not surveyed.
Source:	Canadian Community Health Survey – Cycle 1.1 – 2000/2001; National Population Health Surveys (1994-95 to 1998-99); ISQ
References:	Statistical Report on the Health of Canadians, ACPH, 1999, Health Reports, Vol. 11, No. 3 *How healthy are Canadians?*; NPHS and CCHS documentation and analysis found on www.statcan.ca/health_surveys, www.healthcanada.ca.

Indicator area 5. Change in life expectancy

5a. Age-standardized mortality rates for lung, prostate, breast, colorectal cancer, AMI, and stroke

Calculation:	The age-standardized rate for each cancer site (colon/rectum (ICD-9 153-154), lung (ICD-9 162), female breast (ICD-9 174), and prostate (ICD-9 185), and for acute myocardial infarction (ICD-9 410), cerebrovascular disease (ICD-9 430-438) and the subset for all strokes (ICD-9 430-432, 434, 436) is calculated by multiplying each observed age-specific death rate by the standard population in the corresponding age-group, summing the results, multiplying the sum by 100,000 and then dividing the product by the total standard population. The 1991 Canadian population is used as the standard population.
Exclusions:	Deaths of non-residents of Canada
Source:	Statistics Canada, Vital Statistics, and Demography Division; ISQ
References:	Statistics Canada Vital Statistics Death Databases

5b. 5-year survival rates for lung, prostate, breast, colorectal cancer

Calculation:	The maximum likelihood method of Estève et al. (1990) Age-standardized rates for a given cancer were calculated by weighting age-specific rates to the age distribution of all eligible patients who were diagnosed with that cancer.
Exclusions:	Restricted to cases diagnosed in 1992 that were the first primary cancer for the individual. Subjects with an unknown year of birth or death; subjects younger than 15 or older than 99 years of age at diagnosis; subjects diagnosed through autopsy or death certificate only.

Source:	Statistics Canada, Canadian Cancer Registry, Canadian National Mortality Data Base, and Canadian and provincial life tables (1990-1992); ISQ
References:	Ellison LF, Gibbons L, and the Canadian Cancer Survival Analysis Group. Five-year relative survival from prostate, breast, colorectal and lung cancer. *Health Reports* 2001: 13(1), 23-34.

5c. 30-day AMI in-hospital mortality rate

Note: BC is not reporting on this indicator, as BC data are not comparable with other jurisdictions (see note below).

Numerator:	Number of deaths from all causes that occur in-hospital within 30 days of first admission for an AMI among patients who meet the conditions specified for the denominator
Denominator:	Number of patients who were admitted to an acute care hospital in a given period with a most responsible diagnosis of AMI and who had not been admitted to an acute care hospital with the same most responsible diagnosis within one year prior to the index admission
Calculation:	See below*
Exclusions	Patients less than 20 years of age or greater than 105 years of age; patients discharged alive with a total length of stay less than 3 days; transfers from another acute care facility; records where AMI is coded as a complication; records containing an invalid Health Card number; records which are out of jurisdiction
Source:	Hospital Morbidity Discharge Abstract Database, CIHI
References:	Hosmer DW, Lemeshow S. Confidence interval estimates of an index of quality performance based on logistic regression models. Statistics in Medicine 1995; 14:2161-2172.
	Tu JV et al. *Acute myocardial infarction outcomes in Ontario.* In Naylor CD, Slaughter PM (eds). *Cardiovascular Health & Services in Ontario: An ICES Atlas.* Toronto: Institute for Clinical Evaluative Sciences. 1999; 84-100.
	Tu JV. et al. *Acute myocardial infarction outcomes in Ontario (Methods Appendix). In Naylor CD, Slaughter PM (eds).* Cardiovascular Health & Services in Ontario: An ICES Atlas (Technical and methods appendices). Toronto: Institute for Clinical Evaluative Sciences. 1999.

Notes on comparable reporting

Data have not currently been calculated for British Columbia, Newfoundland and Quebec due to reporting differences. Although comparisons over time within these provinces may be useful, further work will be required to make fair comparisons across provinces.

*Detail on indicator calculations:

Denominator (Index Episode)

Inclusion Criteria:

- Most responsible diagnosis of Acute Myocardial Infarction (ICD-9 410)
- Admission between April 1, and March 1 of the following year (period of case selection ends March 1 to allow for 30 days of follow-up)
- Age at admission between 20 and 105 years
- Gender recorded as male or female
- Admission to an acute care institution
- Length of stay of 3 or more consecutive days

Exclusion Criteria:

- Records containing an invalid Health Card Number
- Records indicating that a provincial resident was seen in a facility outside of the province (to prevent duplicate counts)
- Patients who had an AMI admission within one year prior to the date of the index episode
- Records where AMI is coded as a complication

Numerator:

The numerator is a subset of the denominator meeting the following conditions:

In-hospital death from all causes within 30 days of admission for AMI

Diagnosis Code:

ICD-9 or ICD-9-CM most responsible diagnosis code of 410

Calculation(s):

A logistic regression model is fitted with age, gender, and select comorbid conditions as independent variables. Coefficients derived from the logistic model are used to calculate the probability of in-hospital death following AMI for each case (episode). The expected in-hospital death rate of a province is the sum of these case probabilities divided by the total number of cases. The risk adjusted mortality rate (RAMR) is calculated by dividing the observed in-hospital death rate of each province by the expected in-hospital death rate of the province and multiplying by the average in-hospital death rate. A 95 percent confidence interval for the RAMR is also calculated.

5d. 30-day stroke in-hospital mortality rate

Note:	*BC is not reporting on this indicator, due to comparability issues. See note below*
Numerator:	The number of deaths from all causes that occur in-hospital within 30 days of first admission for stroke who satisfy the conditions listed for the denominator
Denominator:	Number of patients with a diagnosis of stroke admitted to acute care hospitals in the defined time period, who have no previous admission(s) to an acute care hospital for stroke in the year prior to the index admission.
Exclusions:	Patients under 20 and over 105 years of age
Calculation:	See below*
Source:	Hospital Morbidity Discharge Abstract Database, CIHI
References:	Hosmer DW, Lemeshow S. Confidence interval estimates of an index of quality performance based on logistic regression models. Statistics in Medicine 1995; 14:2161-2172.

Notes on comparable reporting

Data have not currently been calculated for British Columbia and Quebec due to reporting differences. Although comparisons over time within these provinces may be useful, further work will be required to make fair comparisons across provinces.

* Detailed information on indicator calculation:

Denominator (Index Episode)

Inclusion Criteria:

- Most responsible diagnosis of stroke (ICD-9 430 (subarachnoid haemorrhage), 431 (intracerebral haemorrhage), 432 (other and unspecified intracranial haemorrhage), 434 (occlusion of cerebral arteries) or 436 (acute, but ill-defined cerebrovascular disease))
- Admission between April 1, and March 1 of the following year (period of case selection ends March 1 to allow for 30 days of follow-up)
- Age at admission between 20 and 105 years
- Gender recorded as male or female
- Admission to an acute care institution

Exclusion Criteria:

- Records containing an invalid Health Card Number
- Records indicating that a provincial resident was seen in a facility outside of the province (to prevent duplicate counts)
- Patients who had a stroke admission within one year prior to the date of the index episode
- Records where stroke is coded as a complication

Numerator:

The numerator is a subset of the denominator meeting the following conditions: In-hospital death from all causes within 30 days of admission for stroke

Diagnosis Code:

The following ICD-9 codes are included:
430 (subarachnoid haemorrhage);
431 (intracerebral haemorrhage);
432 (other and unspecified intracranial haemorrhage);
434 (occlusion of cerebral arteries);
436 (acute, but ill-defined cerebrovascular disease).

Calculation(s):

A logistic regression model is fitted with age, gender, and select comorbid conditions as independent variables. Coefficients derived from the logistic model are used to calculate the probability of in-hospital death following stroke for each case (episode). The expected in-hospital death rate of a province is the sum of these case probabilities divided by the total number of cases. The risk adjusted mortality rate (RAMR) is calculated by dividing the observed in-hospital death rate of each province by the expected in-hospital death rate of the province and multiplying by the average in-hospital death rate. A 95 percent confidence interval for the RAMR is also calculated.

5e,f. 365-day relative survival rates for AMI and 180-day relative survival for stroke

Calculation: AMI – ICD9 410; All Stroke – ICD9 430-432, 434, 436; survival rates are calculated using the Kaplan-Meier method, with persons whose underlying cause of death was not the disease of interest censored on the date of death. Date of incidence is assumed to be the date of admission for the initial hospitalization episode for the disease of interest. Subsequent episodes are ignored. The standard error is calculated using Greenwood's formula. Age-standardization is done by the direct method to the standard 1991 population, with the Greenwood standard error inflated to account for standardization.

Exclusions: Non-residents; persons not admitted as in-patients; admissions outside the patient's province/territory of residence; records with invalid, missing, or un-linkable health insurance numbers; records with severe errors or invalid data that could not be reasonably imputed; provinces and territories with insufficient linkable incident cases of AMI and stroke; admissions in some types of hospitals in some jurisdictions; persons whose initial hospitalization episode did not occur in the calendar year of interest; persons suffering any prior AMI within three years or any stroke within one year of the initial hospitalization episode; persons whose initial hospitalization episode (not stay) for AMI is less than two days; persons under 20 years of age (under 45 years of age for age-standardized estimates); persons who were not diagnosed with the disease of interest in the first stay of an episode or whose diagnosis in the first stay was of a type that did not affect the length of stay.

Source: Jurisdictional administrative databases with sufficient linkage information;Statistics Canada person-oriented health information; Hospital Morbidity Discharge Abstract Database (CIHI); Vital Statistics files (Statistics Canada); ISQ.

Note: At present, Statistics Canada has data to estimate these rates with good quality for Alberta, British Columbia, New Brunswick, and Nova Scotia, and work is under way with Ontario and Quebec.

Notes on comparable reporting

Hospital data from BC includes stays resulting in death that are not reported in other jurisdictions; Statistics Canada has adjusted these estimates to allow comparison

Although linkage error varies by jurisdiction, Statistics Canada has developed an adjustment to compensate for the effect of differing linkage errors

Historical data availability will vary by jurisdiction;

Reporting of data for "non-acute care" hospitals varies by jurisdiction;

In future years, the staged progression to ICD-10-CA and CCI will cause differences due to coding over a number of years and a break in time series.

Indicator area 6: Improved quality of life

6a. Age-standardized rates of total hip replacement

Procedure Code(s): CCP code of 93.51 or 93.59 or ICD-9-CM code of 81.51 or 81.53 in any procedure field

Numerator: Number of in-patient separations from acute care hospitals (discharges, sign-outs, and deaths) where the patient received a total hip replacement during the year, by age and gender categories

Denominator: Population by age and gender categories, either from census or census estimates, for the year

Calculation: Standardized rates are age-adjusted using a direct method of standardization based on the July 1st, 1991 Canadian population as follows:

Age	Pop.	Age	Pop.
<1	403,061	45-49	1,674,153
1-4	1,550,285	50-54	1,339,902
5-9	1,953,045	55-59	1,238,441
10-14	1,913,115	60-64	1,190,217
15-19	1,926,090	65-69	1,084,588
20-24	2,109,452	70-74	834,024
25-29	2,529,239	75-79	622,221
30-34	2,598,289	80-84	382,303
35-39	2,344,872	85-89	192,41
40-44	2,138,891	90+	95,467

Exclusions: Patients not treated as inpatients in acute care hospitals and those who received their surgery prior to admission.

Sources: Hospital Morbidity Database, CIHI. Canada Census, Statistics Canada; ISQ

6b. Age-standardized rates of total knee replacement

Procedure Code(s): CCP code of 93.41 or ICD-9-CM code of 81.54 or 81.55 in any procedure field

Numerator: Number of in-patient separations from acute care hospitals (discharges, sign-outs, and deaths) where the patient received a total knee replacement during the year, by age and gender categories

Denominator: Population by age and gender categories, either from census or census estimates, for the year

Calculation(s): see figures under 6a.

Exclusions: Patients not treated as inpatients in acute care hospitals and those who received their surgery prior to admission.

Source: Hospital Morbidity Database, CIHI. Canada Census, Statistics Canada; ISQ

Indicator area 7: Reduced burden of disease, injury, illness

7a. Age-standardized incidence rates for lung, prostate, breast, colorectal cancer

Specific site codes: colon/rectum (ICD-9 153-154), lung (ICD-9 162), female breast (ICD-9 174), and prostate (ICD-9 185)

Calculation: The age-standardized rate for each cancer site is calculated by multiplying each observed age-specific incidence rate by the standard population in the corresponding age-group, summing the results, multiplying the sum by 100,000 and then dividing the product by the total standard population. The 1991 Canadian population is used as the standard population.

Exclusions: Non-residents of Canada

Source: Statistics Canada, Canadian Cancer Registry, and Demography Division (census population estimates); ISQ

References: Statistics Canada – Cancer Incidence (CCR Shelf tables – IARC rules)

7b. Potential years of life lost due to cancer, AMI, stroke, unintentional injury, suicide

Numerator: Deaths of persons under exact age 75, by age group, sex and cause. Take the midpoint in each age group, subtract from 75 and multiply the number of deaths in that age group disaggregated by sex and cause of death. This represents PYLL.

Denominator: Population estimate (only if a rate is desired; otherwise, no denominator)

Calculation: Formula is as follows:

Age group	Yrs lost
0-1	74.9
1-4	72.0
5-9	67.5
10-14	62.5
15-19	57.5
20-24	52.5
25-29	47.5
30-34	42.5
35-39	37.5
40-44	32.5
45-49	27.5
50-54	22.5
55-59	17.5
60-64	12.5
65-69	7.5
70-74	2.5

Total PYLL = sum of all deaths in each age group X yrs lost (per table above)

Crude PYLL rate per 100,000 = sum of all deaths in each age group X yrs lost X 100,000 / estimated population

Crude cause-specific PYLL rate per 100,000 = sum of all deaths in each age group due to specific cause X yrs lost X 100,000 / estimated population

Exclusions: Non-residents of Canada are excluded from the deaths and population estimates used in the numerator and denominator.

Source: Statistics Canada, Vital Statistics, Death Data Base and Demography Division (population estimates); ISQ

References: For PYLL age<75, various international health publications. For PYLL <70, Health Indicators 1999 (Statistics Canada), Statistical Report on the Health of Canadians (1999).

Note regarding comparable reporting over time

From 1979 to 1999, the underlying cause of death was coded using ICD-9; beginning with 2000, the underlying cause of death will be coded using ICD-10, which will introduce discontinuity to the trend data.

7c(i). Invasive meningococcal disease

A confirmed case is defined as invasive disease with laboratory confirmation of infection: isolation of *Neisseria meningitidis* from a normally sterile site (blood, cerebrospinal fluid, joint, pleural or pericardial fluid) or demonstration of *N. meningitidis* antigen in cerebrospinal fluid.

Numerator: Total number of cases in persons under 20 years of age

Denominator: Population under 20 years of age

Calculation: Numerator/denominator x 100, 000

Exclusions: None

Source: Notifiable disease reporting and enhanced surveillance system

7c(ii). Measles

A confirmed case is defined as laboratory confirmation of infection in the absence of recent immunization with measles-containing vaccine: isolation of measles virus from an appropriate clinical specimen or significant rise in measles specific antibody titre between acute and convalescent sera or positive serologic test for measles IgM using a recommended assay or clinical case in a person who is epidemiologically linked to a laboratory confirmed case.

Numerator:	Total number of cases
Denominator:	Total population
Calculation:	Numerator/denominator x 100,000
Exclusions:	None
Source:	Notifiable disease reporting and enhanced surveillance system.

7c(iii). Haemophilus influenzae b (invasive) (Hib) disease

A confirmed case is defined as invasive disease with laboratory confirmation of infection in the absence of recent immunization with Hib-containing vaccine: isolation of H. influenzae type b from a normally sterile site or epiglottis in a person with epiglottitis, or demonstration of H. influenzae type b antigen in cerebrospinal fluid. Invasive disease includes meningitis, bacteraemia, epiglottitis, pneumonia, pericarditis, septic arthritis, or empyema.

Numerator:	Number of cases in children < 5 years of age
Denominator:	Number of children < 5 years
Calculation:	(Numerator/denominator) x 100, 000
Exclusions:	None
Source:	Notifiable disease reporting and enhanced surveillance system

7d. Prevalence of diabetes

Numerator:	Number of cases diagnosed in persons 20 years of age and older
Denominator:	Estimated population using health insurance registry data for persons 20 years and older
Calculation:	(Numerator/denominator) x 100
Exclusions:	Persons under 20
Source:	National Diabetes Surveillance System (NDSS)

****Note:*** Census population estimates are used for Quebec.

Notes on reporting

Total prevalence estimates are age- and sex-standardized to the 1991 Canadian census. Due to the provisional nature of this initial data on diabetes, however, comparisons between jurisdictions and over time should not be made. Any comparisons with the Canadian average should be made with caution.

Further information on the NDSS

Data Sources

Three administrative data sources are used by the NDSS: Health Insurance Registry, Hospital Discharge Data and Physician Claims. Each province and territory has its own collection and data management protocols. As much as possible, variation in these protocols is identified and documented. Differences in period prevalence among provinces and territories could be partially attributable to different collection practices.

Health Insurance Registry

The registry is used as the population base. A person must be eligible for provincial/territorial health insurance in the year of analysis to be considered. The person must be eligible at the time the person is diagnosed with diabetes. The person is only included in the analysis up to the last date for insurance coverage (e.g. the person moves out of province or dies).

One of the requirements for the NDSS was that the registry ID be a 'life time' identifier. That is, if a person moved out of province or dies, their number would never be reassigned. This is crucial due to the case definition being utilized and in order to do any sort of longitudinal analysis. It is this requirement that has limited the start year for the NDSS to 1995/1996.

Hospital Discharge

The first three diagnosis codes from the hospital data are used and are examined for an ICD-9 (or ICD-9CM) code of 250.

Physician Claims

In determining a diagnosis of diabetes, the diagnosis code is examined for occurrences of the ICD-9 code of 250.

Case Definition

The case definition currently being utilized for the NDSS is the so-called 'Manitoba' rule that was discussed by Blanchard and all (Blanchard, J. F., Ludwig, S., Wajda, A., Dean, H., Anderson, K., Kendall, O., and Depew, N. Incidence and prevalence of diabetes in Manitoba, 1986-1991 *Diabetes Care* 19 (1996): 807-11.)

Under this rule, hospital and medical data are examined for diabetes diagnoses (e.g. ICD-9 250). A person is defined in the NDSS as having diabetes if there are two physician claims with a diagnosis for diabetes within 2 years (730 days) of one another, or if there is a hospitalization for diabetes within the first three recorded diagnoses. The case date is the earliest of these dates.

This rule has been validated only for persons 20 years of age and older. Validation work is proceeding for younger age groups.

Indicator area 8. Waiting times for key diagnostic and treatment services

8a. Wait times for cardiac surgery

Calculations for this indicator were done by British Columbia, based on administrative waitlist databases. Specifications for the indicator included in the Plan for Reporting (noted as PIRC requirements), and variations from them due to the existing database, are noted below:

- Only "isolated" CABG cases, uncomplicated by any other procedure (e.g. valve repair or replacement), are included. (per PIRC requirement).
- All emergent and non-emergent CABG cases are included. (PIRC requirement)
- Data include surgery performed in British Columbia on residents of British Columbia, but do not include residents of British Columbia having surgery in other jurisdictions. The PIRC specification is to report data for patients resident in the jurisdiction, regardless of where surgery occurs.
- Individuals were not counted in the numerator if a decision was made, either by the individual or his/her physician, not to proceed with surgery or to delay surgery for medical or other reasons. (PIRC requirement).

Source: BC Cardiac Registry

8a(i). Months to clear wait list

Numerator: Total # of adults (aged 20 and over) who have received cardiac catheterization and been designated by a physician as needing CABG surgery, but have not yet received their surgery on the last day of the period in question

Denominator: The average number of CABGs completed per month within the specified period

8a(ii). Median wait for surgery

See general notes for 8a.

8a(iii). Distribution of CABG wait times

See general notes for 8a.

Reference: Naylor CD, Baigrie RS, Goldman BS, Basinski, A. Assessment of priority for coronary revascularization procedures. *Lancet* 1990; 335:1070-1073.

8b. Wait times for hip and knee replacement surgery

Calculations for this indicator were done by British Columbia, based on administrative waitlist databases. Specifications for the indicator included in the Plan for Reporting (noted as PIRC requirements), and variations from them due to the existing database, are noted below:

- PIRC requirement was to include only new total hip or total knee replacement procedures (i.e. excluding revisions and partial replacements); BC data do not permit these exclusions.
- All elective and non-elective cases are included. (PIRC requirement).
- Data include surgery performed in British Columbia on residents of British Columbia, but do not include residents of British Columbia having surgery in other jurisdictions. The PIRC specification is to report data for patients resident in the jurisdiction, regardless of where surgery occurs.
- Individuals were not counted in the numerator if a decision was made, either by the individual or his/her physician, not to proceed with surgery or to delay surgery for medical or other reasons (PIRC requirement).

Source: BC Surgical Waitlist Registry

8b(i). Estimated number of months to clear current wait list for (a) total hip replacement surgery and (b) total knee replacement surgery

Numerator: Total number of adults (aged 18 and older) who have been referred for hip/knee replacement surgery but have not yet received it on the last day of the period in question.

Denominator: The average number of adults (aged 18 and older) who have had total hip/knee replacement surgeries performed per month within the specified period.

8b(ii). Median wait in weeks for (a) total hip replacement surgery and (b) total knee replacement surgery

See general note for 8b.

8b(iii). Distribution of wait times for (a) total hip replacement surgery and (b) total knee replacement surgery

See general note for 8b.

8c. Waiting for radiation therapy

Calculations for this indicator were done by British Columbia, based on administrative waitlist databases. Specifications for the indicator included in the *Plan for Reporting* (noted as PIRC requirements), and variations from them due to the existing database, are noted below:

- The PIRC requirement is to report data for patients resident in the jurisdiction, regardless of where treatment occurs, and if non-residents cannot be separated, to report the percent of radiation therapy cases that they represent in the period in question. In the British Columbia Cancer Registry, treatment specifics are not recorded for patients who receive treatment outside the province. The fact is flagged, but relates to those who received radiation treatment

prior to taking up residence in BC, as well as those who are referred outside the province. The percentage is small, less than one percent.

- The PIRC requirement is that only patients 18+ years of age are included. BC has never recorded cases of prostate cancer or breast cancer in a patient under 18.
- The PIRC requirement is that only new cases are to be included, and a new patient is one who is referred for the first time for an oncology opinion with an established diagnosis of malignancy. The BC Cancer Agency defines waiting times in terms of an assessment of readiness-to-treat, which is the date when, in the opinion of a radiation oncologist, a patient is recommended and is medically fit to proceed with the radiation treatment process. The radiation treatment process involves all or any of the following steps: simulation, planning, dosimetry, and treatment.
- The PIRC requirement is that individuals are not counted in the numerator if a decision was made, either by the individual or his/her physician, not to proceed with treatment or to delay treatment for medical or other reasons. (The definition of readiness-to-tread precludes inclusion of any patients for whom a decision is made not to proceed, or to delay treatment).

Source: BC Cancer Registry

8c(i). Weeks to clear current wait list for radiation therapy for (a) breast cancer and (b) prostate cancer

Numerator: Total number of patients who have been referred by an oncologist as recommended and medically fit for the radiation treatment process therapy but have not yet commenced therapy on the last day of the quarter in question

Denominator: The average number of patients starting radiation therapy each week during the quarter in question

8c(ii). Median wait time for radiation therapy for (a) breast cancer and (b) prostate cancer

British Columbia is unable to report on median wait times in this report. The British Columbia Cancer Agency has data on overall median waiting times for the 2001/2002 year, but did not begin to collect data by tumor site until late in the reporting period..

8d. Reported wait times for specialist, diagnostic tests and surgery

8d(i). Reported median wait time for (a) specialist physician visits, (b) diagnostic services, and (c) surgery.

(a) Questions: In the past 12 months, did you require a visit to a medical specialist [such as a cardiologist, allergist, gynecologist or psychiatrist] for a diagnosis or a consultation for a new illness or condition?" If yes, and if the visit had already taken place: "How long did you have to wait between when you and your doctor decided that you should see a specialist and when you actually visited the specialist?"

(b) Questions: "In the past 12 months, did you require any non-emergency surgery?" [previously identified as any surgery not provided in an emergency you may personally have required, such as cardiac surgery, joint surgery and cataract surgery excluding laser eye surgery]. If yes, and the respondent had already had the surgery, "How long did you have to wait between when you and the surgeon decided to go ahead with the surgery and the day of the surgery?"

(c) Questions: Selected diagnostic tests were identified as MRIs, CAT scans and angiographies provided in a non-emergency situation. For respondents who had required one of these tests within the past 12 months and had already had it, "How long did you have to wait between when you and your doctor decided to go ahead with the test and the day of the test?"

Exclusions: Persons living on First Nation Reserves and on Crown lands, residents of institutions, full-time member of Canadian Armed Forces and residents of certain remote regions are excluded from the sample. Persons less than 15 years of age; persons who did not agree to share CCHS survey responses with participating jurisdictions.

Source: Canadian Community Health Survey – Cycle 1.1 – 2000/2001; Health Services Access Survey (supplement to CCHS) – Nov-Dec 2001.

8d(ii). Distribution of reported wait times for (a) specialist physician visits, (b) diagnostic services, and (c) surgery

See above for questions asked.

Exclusions: Persons living on First Nation Reserves and on Crown lands, residents of institutions, full-time members of Canadian Armed Forces and residents of certain remote regions are excluded from the sample. Persons less than 15 years of age; persons who did not agree to share CCHS survey responses with participating jurisdictions.

Source: Canadian Community Health Survey – Cycle 1.1 – 2000/2001; Health Services Access Survey (supplement to CCHS) – Nov-Dec 2001.

Indicator area 9. Patient satisfaction

For each service area, the two following questions were asked: Overall how would you rate the quality of health care received? ... Excellent? Good? Fair? Poor? And, overall how satisfied were you with the way health care services were provided? Were you ... Very satisfied? Somewhat satisfied? Neither satisfied nor dissatisfied? Somewhat dissatisfied? Very dissatisfied?

Numerator:	Weighted number and percentage of individuals reporting "very satisfied" or "somewhat satisfied" with the service provided
Denominator:	Total population aged 15 and older who used health care services in past 12 months
Calculation:	(Numerator/denominator) x 100
Exclusions:	Refer to survey frame exclusions
Source:	Canadian Community Health Survey (sub sample approximately 25,000) – Cycle 1.1 2000

Indicator area 10. Hospital re-admissions for selected conditions

10a. Re-admission rate for acute myocardial infarction

Numerator:	Number of acute care in-patient AMI episodes with a re-admission during the year
Denominator:	Total number of acute care AMI episodes during the year
Source:	Hospital Morbidity Discharge Abstract Database, CIHI

Details regarding calculation:

Denominator (Index Episode)

Inclusion Criteria:

- Most responsible (Type M) diagnosis of Acute Myocardial Infarction (ICD-9 410 or ICD-9-CM 410) that is not also a Type 2 diagnosis (post-admit comorbidity)

  OR

  Where another diagnosis has been coded as the most responsible and also a Type 2, and a diagnosis of Acute Myocardial Infarction, although not the most responsible, is coded as a Type 1 (pre-admit comorbidity)
- Discharge between April 1, and March 3 of the following year (period of case selection ends March 1 to allow for 28 days of follow-up)
- Age at admission between 15 and 84 years
- Gender recorded as male or female
- Admission to an acute care institution
- Length of stay of 3 or more consecutive days

Exclusion Criteria:

- Records with an invalid Health Card Number
- Discharged as a death or self sign-out
- Any one of the following ICD-9 diagnoses recorded in any position:

Cancer	(140-172, 174-208, V58.1, V58.0)
HIV	(042, 043, 044, V08)

Numerator

Inclusion Criteria:

The numerator is a subset of the denominator meeting the following conditions:

Readmission within 28 days of discharge after the index episode of care

Emergent or urgent (non-elective) readmission to an acute care hospital

Readmission for any one of the following conditions (ICD-9):

- Acute myocardial infarction (410)
- Other acute and subacute forms of ischemic heart disease (411)
- Old myocardial infarction (412)
- Angina pectoris (413)
- Other forms of chronic ischemic heart disease (414)
- Conduction disorders (426)
- Cardiac Dysrhythmias (427)
- Functional disturbances following cardiac surgery (429.4)
- Pneumococcal pneumonia (481)
- Other bacterial pneumonia (482)
- Bronchopneumonia, organism unspecified (485)
- Pneumonia, organism unspecified (486)
- Urinary tract infection (599.0)

Exclusion Criteria:

Any one of the following procedures and not also a suffix of '8' (cancelled procedure) or '9' (previous procedure) in association with the readmission hospitalization (CCP):

• Coronary Artery Bypass Graft	(48.1)
• Angioplasty	(48.02, 48.03, 48.04, 48.09)
• Angiography/catheterization	(48.92, 48.93, 48.94, 48.95, 48.96, 48.97, 48.98, 49.95, 49.96, 49.97)
• Pacemaker Insertion	(49.7, 49.81, 49.82, 49.83, 49.84, 49.88)

Calculation(s): A logistic regression model is fitted with age, gender, and select comorbid conditions as independent variables. Coefficients derived from the logistic model are used to calculate the probability of readmission for each case (i.e., index episode). The expected readmission rate of a province is the sum of these case probabilities divided by the total number of cases. The risk adjusted readmission rate (RARR) is calculated by dividing the observed readmission rate of each province by the expected readmission rate of the province and multiplying by the average readmission rate. A 95 percent confidence interval for the RARR is also calculated.

References:

Brown AD, Anderson GM. *Methods for measuring clinical utilization and outcomes.* In Baker GR, Anderson GM, Brown AD et al (eds.) *The Hospital Report '99.* Health Care Performance Measurement Group, University of Toronto, Toronto, 1999.

Hosmer DW, Lemeshow S. *Confidence interval estimates of an index of quality performance based on logistic regression models.* Statistics in Medicine 1995; 14:2161-2172.

Hospital Report Acute Care 2001. Technical notes, Clinical Utilization and Outcomes. Canadian Institute for Health Information and the University of Toronto. A joint initiative of the Ontario Hospital Association and the Government of Ontario, 2001.

Note: There is no longer an indicator 10b.

10c. Re-admission rate for pneumonia

Numerator: Number of in-patient acute care pneumonia episodes with a re-admission during the year

Denominator: Total number of acute care pneumonia episodes during the year

Source: Hospital Morbidity Discharge Abstract Database, CIHI

Details regarding calculations:

Denominator (Index Episode)

Inclusion Criteria:

- Most responsible (Type M) diagnosis of Pneumonia (ICD-9 481, 482, 485, 486) that is not also a Type 2 diagnosis (post-admit comorbidity)

  OR

  Where another diagnosis has been coded as the most responsible and also a Type 2, and a diagnosis of Pneumonia, although not the most responsible, is coded as a Type 1 (pre-admit comorbidity)
- Discharge between April 1, and March 3 of the following year (period of case selection ends March 1 to allow for 28 days of follow-up)
- Age at admission between 15 and 84 years
- Gender recorded as male or female
- Admission to an acute care institution

Exclusion Criteria:

- Records with an invalid Health Card Number
- Discharged as a death or self sign-out
- Any one of the following ICD-9 diagnoses recorded in any position:

  Cancer (140-172, 174-208, V58.1, V58.0)

  HIV (042, 043, 044, V08)

Numerator:

The numerator is a subset of the denominator meeting the following conditions:

- Readmission within 28 days of discharge after the index episode of care
- Emergent or urgent (non-elective) readmission to an acute care hospital
- Readmission for any one of the following conditions (ICD-9):
  - Pneumococcal pneumonia (481)
  - Other bacterial pneumonia (482)
  - Bronchopneumonia, organism unspecified (485)
  - Pneumonia, organism unspecified (486)
  - Other specified bacteria (0084)
  - Staphylococcal septicemia (0381)
  - Empyema (510)
  - Unspecified pleural effusion (511.9)
  - Urinary tract infection, site not specified (599.0)

Calculation(s): A logistic regression model is fitted with age, gender, and select comorbid conditions as independent variables. Coefficients derived from the logistic model are used to calculate the probability of readmission for each case (i.e., index episode). The expected readmission rate of a province is the sum of these case probabilities divided by the total number of cases. The risk adjusted readmission rate (RARR) is calculated by dividing the observed readmission rate of each province by the expected readmission rate of the province and multiplying by the average readmission rate. A 95 percent confidence interval for the RARR is also calculated.

References:

Brown AD and Anderson GM. *Methods for measuring clinical utilization and outcomes.* In Baker GR, Anderson GM, Brown et al (eds). The Hospital Report '99.

Health Care Performance Measurement Group, University of Toronto, Toronto, 1999.

Hosmer, D.W., Lemeshow, S. *Confidence interval estimates of an index of quality performance based on logistic regression models.* Statistics in Medicine, 1995; 14:2161-2172.

Hospital Report Acute Care 2001. Technical notes, Clinical Utilization and Outcomes. Canadian Institute for Health Information and the University of Toronto. A joint initiative of the Ontario Hospital Association and the Government of Ontario, 2001.

Indicator area 11. Access to 24/7 first contact health services

11a. Difficulty obtaining routine or on-going health services

Question: "In the past 12 months, did you ever experience any difficulties getting routine or ongoing health services you or a family member needed?", followed up by questions including time of day and day of the week.

Exclusions: Persons living on First Nation Reserves and on Crown lands, residents of institutions, full-time member of Canadian Armed Forces and residents of certain remote regions are excluded from the sample. Persons less than 15 years of age; persons who did not agree to share his/her CCHS survey responses with participating jurisdictions.

Source: Canadian Community Health Survey – Cycle 1.1 – 2000/2001; Health Services Access Survey (supplement to CCHS) – Nov-Dec 2001.

11b. Difficulty obtaining health information or advice

Questions: "In the past 12 months, did you ever experience any difficulties getting the health information or advice you needed for you or a family member?", followed up by questions about time of day and day of the week.

See 11a for source and exclusions.

11c. Difficulty obtaining immediate care

Questions: "The following questions relate to those situations when you or a family member have needed immediate care for a minor health problem such as fever, headache, sprained ankle, vomiting or unexplained rash.". . ."In the past 12 months, did you ever experience any difficulties getting immediate care needed for a minor health problem for you or a family member?" This was followed by questions about time of day and day of the week.

See 11a for source and exclusions.

11d. Percent having a regular family doctor

See 11a.

12. Home and community care services

12 a,b. Home care admissions; home care admissions, age 75+

Home care services: A range of health-related, social and support services received at home with costs being entirely or partially covered by a national/provincial/territorial health plan. These services enable clients incapacitated, in whole or in part, to live in their home environment. These services help individuals achieve and maintain optimal health, well being and functional ability through a process of assessment, case co-ordination, and/or the provision of services. Service recipients may have one or more chronic health conditions or recently experienced an acute episode of illness or hospitalization. The range of services provided

includes maintenance, rehabilitation, long-term supportive care, acute care substitution, end-of-life care and support for informal caregivers.

Home health care: Includes information and referral, assessment and case management services, nursing services and therapy services.

Home support: Includes homemaking services, personal care or assistance with daily living, meal provision, and home maintenance, home adaptation, transportation, respite and volunteer services.

Admissions to home care services: Individuals are counted when they are accepted into the home care program within the fiscal year of interest. Acceptance is defined as:
a) acknowledgement by the home care program that the individual qualifies for service (based on assessed needs and program criteria); and
b) agreement between the program and the individual (or caregiver) to begin service delivery.

To facilitate effective interpretation of these indicators, jurisdictions were asked to submit additional information on the following:
- Source of data along with explanatory notes if data deviate from recommended definitions
- Definition of reporting period
- Eligibility requirements
- Coverage and co-payment charges, if applicable
- Range and type of home care services provided
- Types of service providers
- Availability of other publicly funded services that may impact home care utilization
- Other information important for interpreting the indicators.

Technical specifications for indicator 12a, Admissions to publicly funded home care services:

Numerator:	Total number of admissions to home care services (health, social and support services) during the fiscal year
Denominator:	Total population from census or census estimates
Calculations:	Total admissions to home care services ÷ total population
Exclusions:	None (administrative data do not allow for exclusion of out-of-province clients)
Source:	Ad hoc survey of provincial and territorial ministries; Statistics Canada census; ISQ

Technical specifications for indicator 12b, Admissions to publicly-funded home care services, age 75+:

Numerator:	Total number of admissions age 75+ to home care services (health care and home support) during the fiscal year
Denominator:	Total population age 75+ from census or census estimates
Calculations:	Total admissions 75+/Total population age 75+
Exclusions:	None (administrative data do not allow for exclusion of out-of-province patients)
Source:	Jurisdictions; census (Statistics Canada); ISQ

12c. Utilization of home care services

Note: BC is not reporting on this indicator, as it is based on survey data which does not include British Columbia residents. BC is one of the few provinces with administrative data to report on home care admissions.

Technical Specifications

Exclusions:	CCHS frame exclusions; jurisdictions in which some or all regions chose not to have these optional questions included on CCHS
Numerator:	Weighted number and percentage of individuals reporting selected types of services
Denominator:	Total population aged 18 and older
Calculation:	(Numerator/denominator) x 100
Source:	Canadian Community Health Survey – Cycle 1.1 2000

The CCHS includes the following definition for home care services: Home care services are **health care or homemaker** services received at home, with the cost being entirely or partially covered by government.

The following survey questions are included:

- Have you received any home care in the past 12 months? Yes/No
- What types of services have you received? (Cost must be entirely or partially covered by government)

Nursing care (e.g., dressing changes, VON)
Other health care services (e.g., physiotherapy, nutrition counseling)
Personal care (e.g., bathing, foot care)
Housework (e.g., cleaning, laundry)
Meal preparation or delivery
Shopping
Respite care (i.e., caregiver relief program)
Other – Specify

12d. Age-standardized rates of hospitalization for ambulatory care sensitive conditions

Numerator:	Number of ACSC in-patient separations from acute care hospitals (discharges and deaths) during the year, by age and gender categories
Denominator:	Population by age and gender categories, either from census or census estimates, for the year
Exclusions:	Patients not treated as inpatients in acute care hospitals (e.g. those seen only in an emergency department or chronic care institution).
Calculation:	Standardized rates are age-adjusted using a direct method of standardization based on the July 1, 1991 Canadian population
Source:	Hospital Morbidity Discharge Abstract Database, CIHI. Census, Statistics Canada; ISQ

Diagnosis Code(s): Based on the Alberta Health reference below, an ICD-9 or ICD-9-CM primary diagnosis code of:

250 Diabetes mellitus
291 Alcoholic psychoses
292 Drug psychoses
300 Neurotic disorders
303 Alcohol dependence syndrome
304 Drug dependence
305 Non-dependent abuse of drugs
311 Depressive disorder, not elsewhere classified
401 Essential hypertension
402 Hypertensive heart disease
403 Hypertensive renal disease
404 Hypertensive heart and renal disease
405 Secondary hypertension
493 Asthma

Calculation(s): see figures under 6a.

References:

Alberta Health. (1998, Dec). Health authority business plan and annual report requirements, 1999-2000 to 2001-2002, p.22. Edmonton, AB: Alberta Health

Anderson,G.M. (1996). Common conditions considered sensitive to ambulatory care. In V. Goel, J. I. Williams, G.M. Anderson, P. Blackstien-Hirsch, C. Fooks, & C.D. Naylor (eds.), Patterns of Health care in Ontario. The ICES practice atlas (2nd edition.) p.104-110. Ottawa, ON: Canadian Medical Association.

Billings, J., Anderson.G.M., & Newman, L. S. (1996, Fall). Recent findings on preventable hospitalizations. *Health Affairs,* 15(3), p. 239-249.

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Brown, A.D., Goldacre, M.J., Hicks, N., Rourke, J.T., McMurtry, R.Y., Brown, J.D., Anderson, G.M Hospitalization for ambulatory care-sensitive conditions: a method for comparative access and quality studies using routinely collected statistics. Canadian Journal of Public Health 2001; 92(2):155-160.

Manitoba Centre for Health Policy and Evaluation *(MCHPE).* Ambulatory Care Sensitive (ACS) conditions.

http://www.umanitoba.ca/centers/mchpe/concept/dict/ACS_conditions.htm

13. Public health surveillance and protection

13a. Tuberculosis incidence rate

Cases with mycobacterium complex (i.e. *M. tuberculosis, M. bovis,* excluding BCG strain or *M. africanum*) demonstrated on culture; in the absence of bacteriological proof, cases clinically compatible with active tuberculosis that have, for example:

- Chest x-ray changes compatible with active tuberculosis including idiopathic pleurisy with infusion
- Active extrapulmonary tuberculosis (meningeal, bone, kidney, peripheral lymph nodes, etc.)
- Pathologic or post-mortem evidence of active tuberculosis.

Numerator:	Number of reported cases of new active and relapsed tuberculosis
Denominator:	Total population
Calculation:	Numerator/denominator x 100,000
Exclusions:	None
Source:	Canadian Tuberculosis Reporting System (CTBRS)

Notes regarding comparable reporting

Provinces/territories update their reportable disease data frequently, even after Health Canada finalizes the data for a given period, so provinces/territories will always have the most up-to-date data for their respective jurisdictions.

13b. Reported HIV diagnoses

Numerator:	Number of newly diagnosed cases of HIV infection
Denominator:	Total population
Calculation:	(Numerator/denominator) x 100,000
Exclusions:	None
Source:	Health Canada. HIV and AIDS in Canada: Surveillance Report to Dec. 31, 2001. Division of HIV/AIDS Epidemiology and Surveillance.

Notes on comparable reporting

There are currently varying practices in terms of reporting HIV, which may make comparisons between jurisdictions difficult.

Provinces/territories update their reportable disease data frequently, even after Health Canada finalizes the data for a given period, so provinces/territories will always have the most up-to-date data for their respective jurisdictions.

13c. Verotoxogenic *E. coli* incidence rate

Numerator: Number of reported cases of Verotoxogenic *E. coli*

Denominator: Total population

Calculation: (Numerator/denominator) x 100,000

Exclusions: None

Source: Notifiable disease records

Notes on comparable reporting

Provinces/territories update their reportable disease data frequently, even after Health Canada finalizes the data for a given period, so provinces/territories will always have the most up-to-date data for their respective jurisdictions.

13d. Chlamydia incidence rate

A confirmed case is defined as laboratory confirmation of infection - detection of *C trachomatis* by appropriate laboratory techniques in genitourinary specimens.

Numerator: Reported cases of genital Chlamydia infection

Denominator: Total population by age group

Calculation: (Numerator/denominator) x 100,000

Exclusions: None

Source: Notifiable disease reports

Notes regarding comparable reporting

Provinces/territories update their reportable disease data frequently, even after Health Canada finalizes the data for a given period, so provinces/territories always have the most up-to-date data for their respective jurisdictions.

The introduction of non-invasive and more sensitive tests for chlamydia can increase the reported rate in a jurisdiction; timing of the implementation of such tests should be noted.

13e. Exposure to environmental tobacco smoke

Numerator: Total number of non-smoking persons reporting exposure to environmental tobacco smoke in Canada

Denominator: Total non-smoking population

Calculation: (Numerator/denominator) x 100

Exclusions: None

Source: Canadian Community Health Survey

Indicator 14. Health promotion and disease prevention

14a. Percent teenage smokers

The data are based on the question: At the present time do you smoke cigarettes daily, occasionally or not at all?

Numerators: Weighted number of individuals aged 12-19 who report: (a) currently smoking; (b) daily smoking

Denominator: Total population aged 12-19

Calculation: (Numerator/denominator) x 100

Exclusions: Refer to survey frame exclusions

Source: Canadian Community Health Survey 2000; National Population Health Survey, 1994, 1996, 1998; ISQ

14b. Physical activity

The physical activity index is based on an individual's energy expenditure (EE). EE is calculated using the frequency and duration per session of physical activity, as well as the MET (metabolic) value. The MET is the energy cost of the activity expressed as kilocalories expended per kilogram of body weight per hour of activity, doing a physical activity during the past 3 months, the number of times and time spent on each activity.

A physical activity index is calculated to determine energy expenditure values (EE). The derived physical activity index results in the following categories:

Description	Definition
Active	Average 3.0 +kcal/kg/day of energy, or exercise required for cardiovascular health benefit
Moderate	Average 1.5-2.9 kcal/kg/day, some health benefits but little cardiovascular
Inactive	Energy expenditure below 1.5 kcal/kg/day

Numerator: a) Number of individuals reporting combined active (≥3.0 kcal/kg/day) and moderately active levels of physical activity (1.5-2.9 kcal/kg/day)

b) Number of individuals reporting an inactive level of physical activity (<1.5 kcal/kg/day)

Denominator: Total population aged 12 and over

Calculation: (Numerator/denominator) x 100

Exclusions: Survey frame exclusions

Source: Canadian Community Health Survey – Cycle 1.1, 2000
National Population Health Survey, 1994, 1996, 1998; ISQ

14c. Body Mass Index

Numerators:	Population aged 20 to 64, reporting a BMI in each of the four categories shown
Denominator:	Total population aged 20 to 64
Calculation:	(Numerator/denominator) x 100
Exclusions:	Individuals less than 20 years of age as well as survey frame exclusions.
Source:	Canadian Community Health Survey – Cycle 1.1, 2000; National Population Health Survey, 1994, 1996, 1998; ISQ

14d. Immunization for influenza for 65+

This indicator is usually reported as the proportion of individuals reporting immunization within certain time frames. The questions asked are: Have you ever had a flu shot? When did you have your last flu shot?

Numerator:	Estimated population 65+ reporting immunization: a) <1 year ago; b) 1 or more years ago; c) never
Denominator:	Total population aged 65+
Calculation:	(Numerator/denominator) x 100
Exclusions:	Survey frame exclusions
Source:	Canadian Community Health Survey (sub sample)– Cycle 1.1, 2000; ISQ

BRITISH COLUMBIA

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